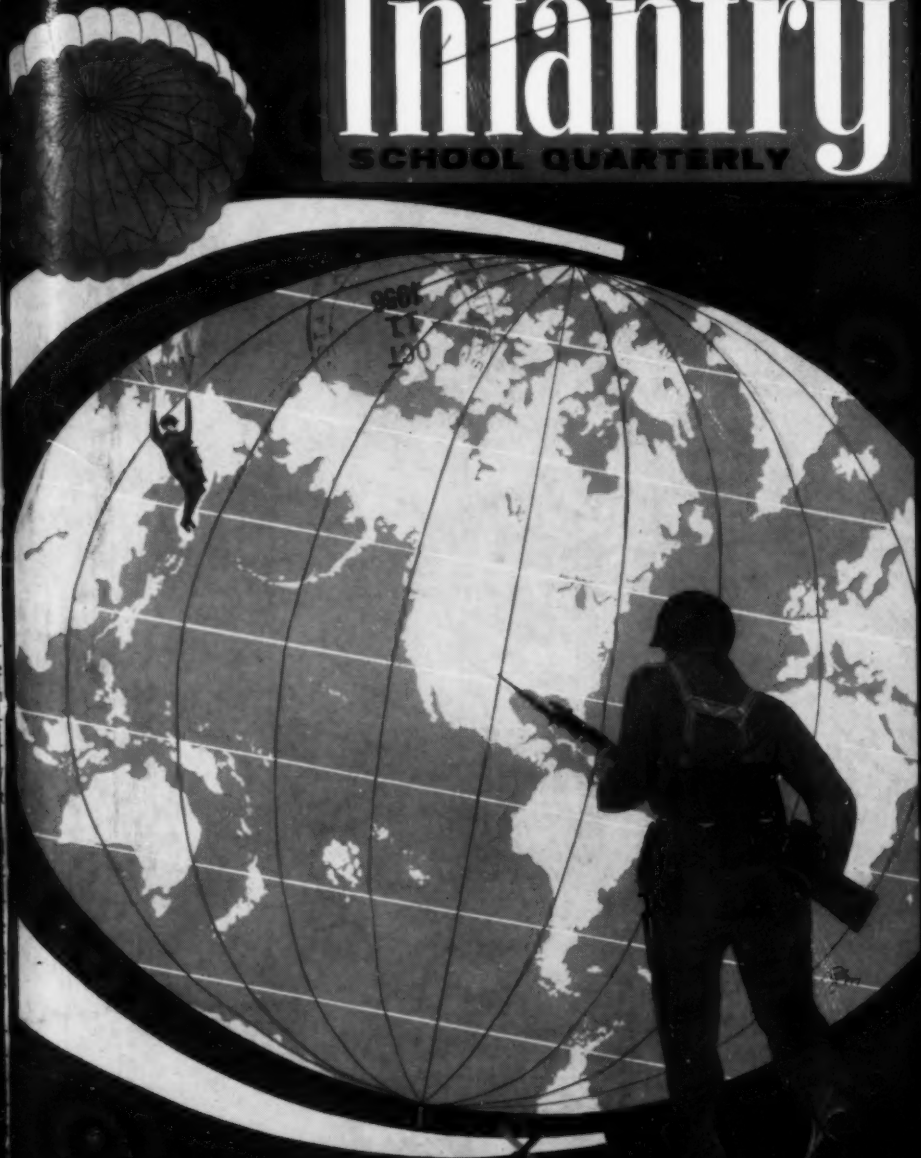
Infantry

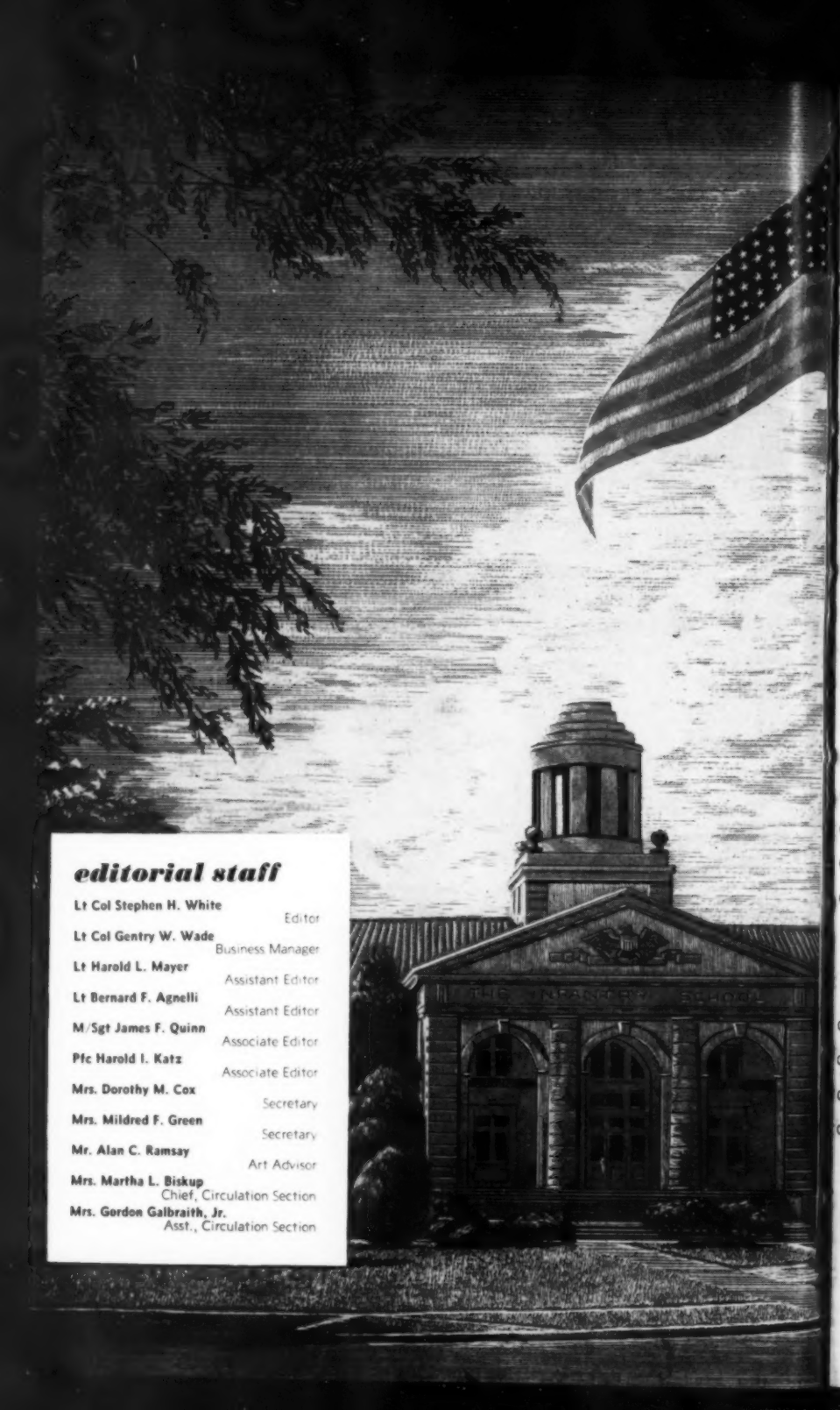
SCHOOL QUARTERLY



the magazine

for infantrymen

october 1956



editorial staff

Lt Col Stephen H. White — Editor

Lt Col Gentry W. Wade — Business Manager

Lt Harold L. Mayer — Assistant Editor

Lt Bernard F. Agnelli — Assistant Editor

M/Sgt James F. Quinn — Associate Editor

Pfc Harold I. Katz — Associate Editor

Mrs. Dorothy M. Cox — Secretary

Mrs. Mildred F. Green — Secretary

Mr. Alan C. Ramsay — Art Advisor

Mrs. Martha L. Biskup — Chief, Circulation Section

Mrs. Gordon Galbraith, Jr. — Asst., Circulation Section

Infantry

volume 46 number 4 — october 1956

the infantry school

Maj Gen Herbert B. Powell
Commandant

Brig Gen Robert L. Cook
Assistant Commandant

Col Thomas H. Beck
Deputy for Combat Developments

departments

Col William H. Billings
Tactical

Col William E. Ekman
Airborne-Army Aviation

Col Charles F. Leonard
Weapons

Col Rollin B. Durbin
Communications

Col Roy A. Murray
Staff

Col John D. Coney
Non-Resident Instruction

Col John J. Dalton
Ranger

Col Melvin C. Brown
Automotive

academic staff

Col Blair A. Ford
Director of Instruction

Col Frank E. Ball
Secretary

Col William F. Kernan
Operations Officer

Col Theodore C. Mataxis
Chief, Publications and Visual Aids Office

articles

8 **Invitation to Think** by Gen Willard G. Wyman

16 **Small Unit Task Forces** by Capt Thomas H. Jones and Capt Aaron C. Adkins

28 **Leadership For Infantry** by Col O. Z. Tyler

38 **The Mule Returns** by Lt Bernard F. Agnelli

44 **Atomic Fire Support** by Col Theodore C. Mataxis

56 **Sword of Silk** by Capt Boyd T. Bashore

70 **Accuracy with the LMG** by Lt George W. Herndon

78 **Chariot for the Queen** by Lt Leland E. Andrews

89 **What Will They Do in the Infantry?** by Maj Gen Armistead D. Mead

102 **Checklists for Infantry Leaders—Night Attack**

features

2 **Letters to the Editor**

6 **Commandant's Message**

77 **Quiz**

87 **Answers to Quiz**

93 **How Would You Do It?** by Capt Richard S. Sweet

107 **What's New for Infantrymen?**

Published quarterly by The Infantry School, Fort Benning, Ga. Entered as second-class matter June 11, 1948, at the Post Office, Columbus, Ga., under the Act of March 3, 1879. Subscription rates: 1 year, $2.50; 2 years, $4.75; 3 years, $7.00. Four copies a year. Foreign subscribers add $.25 yearly for postage. Address subscription applications to THE BOOK DEPARTMENT, THE INFANTRY SCHOOL, FORT BENNING, GA.

LETTERS TO THE EDITOR

Quarterly Concept

Sir:

I would like to see *The Infantry School Quarterly* assume the role of "spokesman for the Infantry." Give us the Army viewpoint on the Air Force-Navy dispute and the Army's stand on our need for our own tactical air.

I realize *The Quarterly's* status does not allow complete independence but couldn't *The Quarterly* fill the void of the old *Infantry Journal?*

I appreciate the tremendous improvements in *The Quarterly* and the fine work done by the present staff. My comments are not intended to be any reflection on them. What I am proposing is a change in the concept of *The Quarterly.*

Howard M. Steele, Jr.
1st Lt, Infantry
Operations
The Infantry School

The Quarterly *very definitely will attempt to fill the void left by the* Infantry Journal. *And, within the limits of propriety expected in an official publication, we intend to be an outspoken "spokesman" for the Infantry. We are anxious to have and* will publish—*in addition to doctrine and techniques—thinking which will help individuals, units and the Infantry as a whole. However, we must point out that our primary mission is to publish—as an extension of Infantry School instruction—"need-to-know" information for personnel in or working with the Infantry regiment and below—with emphasis on the "below." While we at times include some "nice-to-know" and higher level information we feel tha we can be of greater assistance to ou readers by concentrating on the lowe level and leaving the bigger picture t other publications that exist specifical for that purpose. We would apprecia having the thoughts of more* Quarterl *readers on this subject.—Editor.*

Reprints of "Dear Sir"

Sir:

I have just finished reading the lett to Cadet Andrews, appearing in the Ju issue of *The Infantry School Quarterl* A very fine article especially for ou needs. But appearing in *The Quarterl,* I am afraid it will be read mostly l those already with a commission.

I am anxious to get the letter to t ROTC cadets, so wonder if you coul reprint about 500 copies of both Cade Andrews' letter to The Commandant and Gen Cook's reply. I certainly would appreciate it. . . .

Barney A. Daughtry
Col, Infantry
PMS&T
University of Georgia

We have reproduced "Dear Sir" fo Col Daughtry's ROTC cadets and wi try to do the same for any other ROT unit desiring it. We also want to ad that permission is granted for any uni to reprint the article for whatever use i might have. We'd like to ask PMS&T and their assistants to bring The Qua terly *to the attention of their ROTC st*

lents. Many cadets in ROTC units, the United States Military Academy and other military schools find The Quarterly *helpful. It enables them to come on active duty better prepared and with greater self-assurance. Cadets may subscribe by writing to the Book Department, The Infantry School, Fort Benning, Ga.—Editor.*

Still a One-Man Job

Sir:

While helping score gunners' tests on the 81mm mortar I was surprised to see that the assistant gunner (number two man) has no other job in helping to get the mortar laid in on the stakes other than moving the bipod. I have worked with 4.2-inch mortars for three years. The assistant gunner on the 4.2 levels the cross-leveling bubble whereas the gunner using the 81mm mortar has to do this himself, creating a problem leveling the bubble and getting on the stakes. It involves too much time.

I suggest that the bipod on the mortar be set up in reverse (or backwards) thus allowing the assistant gunner to level the cross-leveling bubble in the same manner as it is done on the 4.2-inch mortar. Not only does this help on the bubble and stakes but it places the elevating handle forward towards the front making it easier for the gunner to operate. He can use his left hand instead of reaching in under the tube. Other NCOs and myself tried this and it proved successful.

Frank L. Huddleston, Sgt.
Spt. Co. 511th Abn. Inf.
APO 112, New York

Your suggestion was referred to the Mortar Committee, Weapons Department, The Infantry School. Here is the committee's comment:

"It is entirely possible to position the bipod backwards when mounting the 81-mm mortar and to accomplish angles of shift by using the assistant gunner to level the cross-level bubble in a manner similar to that employed with the 4.2-inch mortar. This method, however, is not recommended for the following reasons.

"It has been determined through years of experience and experimentation on the part of personnel assigned to The Infantry School and various testing and developmental agencies in the U. S. Army that for the purposes of speed, accuracy and economy of personnel one man, the gunner, should operate the sight and elevating and traversing mechanisms of the 81mm mortar. Military characteristics for the 81mm mortar were recommended to Ordnance with the above process in mind and the bipod was designed to meet those characteristics.

"Part of the 81mm-mortar gunner's preliminary training is comprised of cross-leveling exercises. The coordination achieved through training results in the gunner's ability to traverse and cross level simultaneously which entirely eliminates the problem of consuming too much time.

"An 81mm-mortar gunner who is properly trained will find that the elevating crank is in a more convenient position when the bipod is mounted in the conventional manner.

"The spikes of the feet of the bipod are designed so that they point slightly to the rear when the mortar is properly mounted. If the bipod is positioned backwards, the spikes on the feet will point to the front and it would be possible for the legs to slide to the rear when the mortar is fired under certain conditions such as on hard ground when the base plate is not firmly seated."

While the school does not go along with this particular suggestion, we appreciate your interest and your letter. We always welcome your thoughts and suggestions. Thinking Infantrymen will give us a better Infantry.—Editor.

Infantry "Queens" Read ISQ

Sir:

I have just finished reading the July 1956 issue of *The Infantry School Quarterly*. This was indeed an enlightening and interesting experience.

Although my husband is a second lieutenant, before reading your magazine, all Army jargon escaped me completely. I never realized the scope and extent of the training given to an Infantryman or the many facets which come into play in a successful Infantry. (The vitalness of the airborne is certainly one clear-cut example.)

I know I will save this issue and all future ones—wives should and must know not only the tasks their husbands are to fulfill but also how and how well our families and homes are being protected by the excellence of the Infantryman's training.

The Infantry School motto, "Follow Me," is a fitting tribute which the past has confirmed and which allows the future to be faced confidently.

Mrs. Madison S. Jones III
Bronx, New York, N. Y.

We are happy to learn that The Quarterly *is being read by the distaff members of the Infantry. God bless them. They can be a powerful factor in helping all of us to do our jobs better.—Editor.*

More on the R&S Platoon

Sir:

The April issue of *The Infantry School Quarterly* carried a fine article by Capt Donald F. Bletz concerning a possible stopgap measure for providing a reconnaissance and security platoon within the Infantry battalion. It proposed that an R&S platoon composed of a platoon headquarters, scout platoon, rifle squad, antitank section and support squad be assembled from the battalion's heavy weapons company.

It was my good fortune during 1952-53 to command a task force (later a company) composed of three platoons very similar to the organization described. Each of these platoons was composed of a headquarters, scout section (two squads), rifle squad, an AT squad (one 75mm rifle), and a support squad (one 81mm mortar). The difference between this organization and that of Capt Bletz, mainly one scout squad, is inconsequential.

The necessity of such a unit is being recognized. It is important to determine how this unit can best be organized. The platoons of my task force were each assembled by a parent battalion as a permanent organization. While working with them I became convinced that a similar platoon could be formed very quickly by any battalion as a stopgap measure.

My method retains more tactical integrity within the heavy weapons company and employs the normal method of attachments. I am sure that an R&S platoon can be organized with less confusion, less disruption to the heavy weapons company and with less requirement for training than in the method proposed by Capt Bletz.

Why not take the rifle platoon rather than the heavy weapons company for the basic unit? The rifle platoon is already trained in reconnaissance and in scouting and patrolling by foot and motor. Have the platoon leader keep one rifle squad, his platoon sergeant and the six best men from his weapons squad. Then attach to him one AT section and one mortar squad, intact, from the heavy weapons company. Now he has the weapons and most of the men that he needs for his new mission. Remaining behind in his platoon is a good fighting force led by the assistant platoon sergeant and composed of two complete rifle squads, the rocket launcher team and four other men — a total of 27 men.

The bind appears in getting transportation and communications. The platoon leader now has four ¼-ton trucks and one AN/PRC 10 radio that came with the AT section and mortar squad. He needs two more ¼-ton trucks, six more AN/PRC 10s, two ¾-ton trucks and some wire. One comparison of the vehicles and radios in a rifle company with those in a heavy weapons company shows where most of these must come from—the same place Capt Bletz suggested—so you pry loose from the heavy weapons company the necessary vehicles. Some of the radios may be provided by the communication officer from utility sets—the others by the heavy weapons company. No one will fight over giving the R&S platoon leader two reel equipments CE-11.

The R&S platoon leader now takes the attached mortar-squad jeep for his own use and gives the mortar squad in return one of the ¾-ton trucks with trailer. He sends the other ¾-ton truck to his rifle squad. The two ¼-ton trucks that he got from the heavy weapons machinegun squad he sends to his weapons squad (now his scout squad). And he distributes the radios as suggested by Capt Bletz.

What are the results of this method of organization? First, we have a heavy weapons company with a detached AT section, mortar squad, four less vehicles and six less radios at the most. The heavy weapons company commander does not feel that his mission is greatly endangered by these normal detachments but he would like to get replacements for the vehicles and radios as soon as possible. Secondly, we have one rifle company with an understrength, but effective, platoon, most likely in a reserve position. Thirdly, one R&S platoon composed of an integral headquarters, scout squad (weapons squad), rifle squad, an attached AT section and a mortar squad. With a couple of dry runs to refresh minds as to the mission and organization of the R&S platoon, this unit is ready to roll.

William B. Mounsey
Capt, Infantry
Fort Benning, Ga.

. . . and a Reply

Sir:

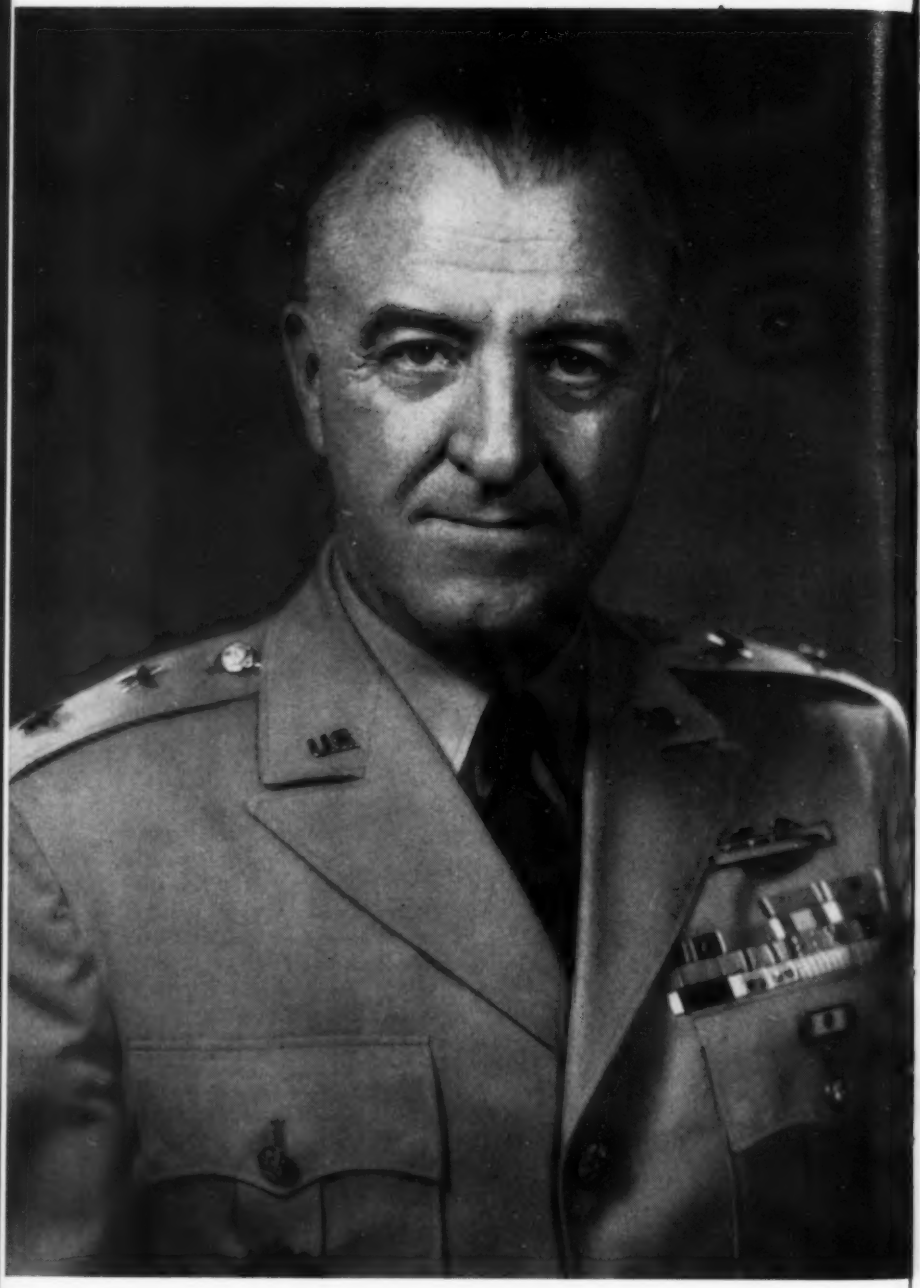
I am pleased to know that someone read my recent article on the proposed R&S platoon. I am downright flattered to find that Capt Mounsey read it in detail and took the time to reply.

For the benefit of anyone who might be interested in forming an R&S platoon in his battalion, I would like to point out a few of the advantages and disadvantages of Capt Mounsey's and my proposals.

As I see it, the primary advantage of Capt Mounsey's organization is that it does not greatly reduce the personnel strength of any particular company within the battalion. On the other hand, it has the disadvantage of getting its personnel, transportation and communication equipment from several sources which will, in my opinion, make it more difficult to form and disband the R&S platoon as the situation dictates. Although the number of personnel taken from the heavy weapons company is indeed limited, the transportation and communication equipment taken from the company will still reduce its effectiveness in accomplishing its fire-support mission.

Next, my own organization: the platoon which I propose is to come entirely from the heavy weapons company. The advantage here is that the platoon can be placed into the field more quickly because only one company is involved. The most obvious disadvantage to my proposal is, as stated in my article, that the effectiveness of the heavy weapons company would be reduced by approximately one third when the R&S platoon is function-

(Continued on Page 112)



Dear Infantrymen:

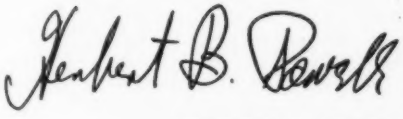
I have undertaken my duties here at The Infantry School with the sober realization that I have been preceded by many great Commandants whose high standards and progressive thinking have made The Infantry School the foremost institution of its kind in the world. I intend to devote every effort to the maintenance of those high standards and to carry them forward whenever and wherever it is possible to do so.

We sometimes hear that our Infantry soldier is becoming less important as nuclear weapons and airpower become more highly developed. There is great danger in this sort of thinking. The atomic age has yet to find a substitute for the man who seizes or holds ground—our Infantryman. The defense of our nation cannot rest entirely on an advantage in nuclear weapons even though we maintain that advantage. Circumstances might preclude their use, as they did in Korea and as they have done in the case of gas and bacteriological warfare.

We must have an Army, Navy and Air Force strong enough to deter aggression or, failing in that, capable of winning small brush-fire wars or a general war—with or without atomic weapons.

At the Infantry School, we shall continue to develop the Infantryman, who is needed to fulfill his historic and continuing role as the bulwark of our National defense. And we will provide him with the leadership, the equipment, the tactics and the mobility—ground and air—to do this job.

I am particularly interested in progressive thinking. I shall welcome thoughts and suggestions from any source, which will improve the Infantry. Write to me or use this official publication of the School as a forum for forward thinking that will help other Infantrymen.



HERBERT B. POWELL
Major General, USA
Commandant

If we join mind

throughout the Army and ai

our thoughts at realistic targe

we will continue to defend ou

nation by winning our battle

in advan

By GENERAL WILLARD G. WYMAN

INVITATION TO THINK

Our Army is blessed today, as it h always been blessed, with a go share of the best minds this great demo racy has produced. It has been the minds—nurtured in the classrooms of o military schools and tested in the field that have enabled us to win, in advan so many of our battles.

We must continue to win our Natio battles in advance. I want to extend you—the officers and men who will fig

those battles—an invitation to push back the false horizons imposed by past victories and futuristic fantasy and see clearly what must be done in the Army *now* to win our future battles. . . . An invitation to contribute to the evolution in doctrine, organization and technique necessitated by our atomic age.

It's simply an invitation to THINK!

If my invitation sounds merely rhetorical to officers and men of your present rank and position, let me point out that it was a lieutenant of Infantry who contributed the "boat-team" concept to the successful amphibious operations of World War II. It was a sergeant who thought of a way to win the battle of the hedgerows in Normandy with a ploughshare, a spot of welding and a tank. And I recall that it was a very junior corporal of Cavalry who approached me one day some years ago with a page of hieroglyph-

GEN WILLARD G. WYMAN, Commanding General, Continental Army Command, was commissioned in the Coast Artillery upon graduation from the United States Military Academy in 1918 and transferred to the Cavalry two years later. During the first World War, Gen Wyman served with the AEF in France and in the Sino-Japanese War with the Chinese Nineteenth Route Army in the defense of Shanghai. In World War II, he first was Gen Stilwell's G3 representative to the Chinese Fifth Army in Burma and later, G3, U.S. Forces in CBI. Moving to the North African Theater, he was a staff officer in Allied Force Headquarters and then, assistant division commander, 1st Infantry Division, in Sicily, the Normandy landings and in the campaigns of France and Germany. He then returned to the United States to take the 71st Infantry Division overseas and led it across Germany into Austria where it linked with Russian forces at the River Enns. Upon returning to the United States, he became G2, Army Ground Forces, and later, chief of staff, First U.S. Army. In Korea, he was commanding general, IX U.S. Corps. Gen Wyman next went to Turkey as commander, Allied Land Forces, Southeastern Europe. In 1954, he returned to the United States and was named commanding general, Sixth U.S. Army. In August of last year, he became deputy commanding general, CONARC, and assumed his present position in March of this year.

ics that he said would improve the Army's radio sets. On the off-chance that he had hit upon something that the experts had missed, I submitted his brain-buster through channels to the Chief Signal Officer. Back came congratulations, a commendation for the corporal and the news that his modification was being adopted on all radio sets in the Army.

Today, the Army urgently needs such constructive ideas. If we are to respond successfully to the sweeping advances of our technology, we must call upon the mental resources of every man and woman in uniform. It is precisely by pooling creative thinking in this fashion that science has achieved its most important breakthroughs on the perimeter of human knowledge. The very same technological developments which force us to adaptation now were, themselves, but the end products of creative collaboration. Surely what the physical sciences can team to manufacture, our military art and science can learn to master—providing we join minds now throughout the Army and aim our thoughts at realistic targets.

I want to point out several such targets for your creative thought and offer a few mental sighting-and-aiming exercises to supplement those that you have already undergone while in the service. If I repeat much that you already know, it is intentional. Some topics deserve the emphasis of repetition. I feel very earnestly that this is one of them.

First a glance at a scene that is now familiar to the imagination of every thinking soldier—the atomic-age battlefield. Knowing the destructive capacity of the weapons already in our hands for conventional use, one truth is at once apparent to us: Static lines of defense and massive concentrations for attack cannot exist under the density of fires normal to this battlefield. The compact lines of defense and massive concentration for offense which characterized our operations in World War II and Korea are as obsolete here as was the Maginot Line on the frontier of France in 1939. It is imperative that we realize this fact in all of its many implications. A new doctrine must be evolved from concepts based upon our realization.

Elementary? It would have seemed elementary that *mass* as a means in itself was obsolete after Braddock's horrible defeat, yet military doctrine failed to reflect the fact until after the carnage

of World War I a century and a half later!

Fortunately, our minds are moving at a faster pace these days. Already we have concepts that recognize — at least in broad outline — the paramount realities of the atomic battlefield. Like nuclear fission, these concepts can be capsulized into a simple formula:

"Mobility + firepower + communication = superior force at the point of decision."

Applying this formula, we now envision a defense in which units will be disposed in scattered locations across the forward defensive area and at blocking sites which extend the depth of the battle position. Elements making initial contact will hold in place while mobile forces from reserve and adjacent positions counterattack, supported by friendly atomic and conventional fires.

In our offensive operations, combat units will mass rapidly from widely dispersed positions and sustain their concentration only until objectives have been seized. Then they will speedily redeploy across a broad front. Even during periods of noncontact units frequently will shift locations to deceive the enemy and minimize their attraction as profitable atomic targets. Despite the fluidity of operations on this battlefield, key terrain will lose none of its tactical importance. As always it must be fought for and held. Carefully selected terrain features will be used as a means to control the battle, destroy enemy forces, create favorable opportunities for unleashing our atomic weapons and to deny the enemy similar advantages.

While we can see this pattern of future operations quite clearly in our mind's eye, as always the brain moves faster than the hand. Many of the tools to implement our thoughts and weave this pattern with optimum effectiveness are still in pilot production or on the drawing board. "Optimum mobility," for example, means "cross-country mobility"—even "vertical mobility." In the face of the atomic threat, it also means "protected mobility" such as that afforded by armored personnel carriers of which our present M-59 is but a prototype. And though industry is working diligently with us to fill our optimum needs, it will be years before the material to do so is available in sufficient quantity and quality under present limitations of the defense budget.

Since defense budgeting is under constant scrutiny in the light of world trends and developments, we can hope that some of our most compelling requirements may receive earlier emphasis. I am thinking now especially of tactical Army Aviation and of the air lift which we must have for strategic mobility to fulfill our world-wide mission. I trust that our legitimate needs in this regard will never be mistaken for mere ambition! As General Taylor has said, "We are not competing with the Air Force, their roles or their mission; we are trying to give ourselves battlefield mobility in order to keep alive and be effective on the atomic battlefield."

The tactical organizations to fit the atomic battlefield with optimum effectiveness are also in the test-tube stage of realization. Studies of their composition are in progress at the Continental Army Command, the Command and General Staff College and at each of the Combat Arms Schools. Current thinking points to the possibility that the Infantry battalion may be replaced in the not too distant future by an integrated battle group of all arms; semi-independent and self-contained; capable of operation over extended distances on a fluid battlefield with a minimum of control by higher headquarters.

Meanwhile, the Army has been taking a far-sighted look at our present organi-

zations to determine what should be done to adapt them. Exercises Follow Me, Blue Bolt and Sagebrush, with which all of you are familiar I know, are part of a series of studies entitled the ATFA Project that is being conducted for this purpose by the 3d Infantry Division and elements of our armored forces. Although no firm position has been established yet as a result of these experiments, they have planted radial rods along promising avenues of approach to the problem.

In these and similar tests, the Armored Division appears more readily adaptable to the atomic battlefield than the Infantry Division as presently organized and equipped. Not only does the Armored Division have a highly flexible combat command structure, but it possesses the firepower, the communications, and the mobility with a protective skin so essential to our projected pattern of operations. Many of the techniques that will be required are already SOP in the Armored Division.

On the other hand, in the Infantry Division, experiments indicate that it will require considerable revamping. For example, the Infantry battalion must be made into a more self-contained entity—less dependent upon its next higher headquarters for combat support. It must contain sufficient personnel and firepower so that it can dominate larger areas adjacent to the terrain it occupies. It must be prepared to sustain itself during the long periods of isolation dictated by the necessity for dispersion. It must have better communications, and know how to use them. Thus constituted, the Infantry battalion would have a healthier resemblance to the integrated "battle group" now visualized as the primary tactical unit of the future.

So much for distant vistas—however inviting to creative thought. Let us return to the present and take a good look at this transitional period through which we currently labor. Let's take a "thousand-yard" look—the kind that the doughboy takes at the next hill in combat when it doesn't matter what weapons are on the drawing board or what ideas are still on paper in the Pentagon, when all that matters is what he has on hand and in his head to help him take that hill!

Looming in the background of our transitional scene, we can perceive a very real danger. To catch an enemy while he is crossing a stream is the classic equivalent of crossing the naval "T." Despite the verbal smoke screen currently emanating from the Kremlin—*because* of it, in fact—we must remain alert to the possibility that they may try to catch us in mid-stream! It was the tragedy of France that her army was prepared in 1939 to win the war of 1914. It must never be our national tragedy that we planned to be prepared in 1969 for a war that occurred in 1957.

The atomic battlefield could materialize at any moment regardless of whether we are ready for it or not. The weapons that dictate its special conditions are already in our hands and those of our potential enemy. We must act *now,* and develop our capacity to adapt to those conditions within the *framework of units already in being and equipment now on hand.* This is an immediate target of opportunity worthy of your best mental marksmanship.

My own "thousand-yard" look at it dates back to 1951 when I assumed command of NATO ground forces in Greece and Turkey. There, tucked under the bulging belly of the Red Colossus, we had not the slightest doubt about the time we would have to prepare for atomic-age warfare. In the few seconds required to issue a fire order, Soviet concentrations could begin to fall on our conventionally organized troops. Every glance at the horizon impressed upon me the urgency of our need to convert existing formations within our current means to meet our current possibilities.

On my staff, I was fortunate to have some of the most brilliant minds in the Army—including officers who now hold key positions in the Pentagon. In addition to directing such measures as were appropriate to the specific time and place, I called on my staff to prepare a study on the broad aspects of adaptation for atomic warfare. When I returned to the United States and assumed command of the Sixth Army, I pursued the study further during maneuvers at Fort Lewis, Washington, with the aid of Major General Bob Sink and our two staffs.

From all of this collaborative thinking has evolved a concept that is about to be implemented by all Infantry Divisions in the Continental United States. It is entitled: "the mobile forces concept."

Under its guidance, training programs are now being prepared here and within each Infantry Division designed specifically to ready our conventional units for operations on the atomic battlefield. In a training memorandum, published and disseminated a few months ago by the Continental Army Command, particular methods for accomplishing this are projected. To capitalize on the latent combat potential of standard organizations, mobile forces of combined arms and services will be formed around organic weapons of heavy firepower.

The composition of these mobile forces may not appear unlike some of the task forces that were improvised on the battlefields of World War II and Korea. But there the resemblance will end! Instead of a hastily assembled conglomeration of discordant elements, our mobile forces will be well-rehearsed battle groups. Instead of being extemporized on the spur of the moment, their composition will be SOP. Instead of being strangers to each other, their members will be experienced teammates. Instead of winning their battles by chance, they will win them in advance on the maneuver grounds of the United States!

To achieve this, we must integrate the organization and tactical training of mobile forces into our conventional training program now at every level of command in the Infantry Division. The occasional in our thinking and our training must become the habitual! As a line of departure, our Continental Army directive delineates the composition and employment of three basic types of mobile forces that will be formed within each division.[1]

Numerous other combinations of weapons and men drawn from existing units and mobilized with organic transportation of the Division are possible and may be more desirable. Variations and innovations are not only expected, as the employment of mobile forces becomes habitual in the field—they are *invited* from the field. And I mean that quite literally! I hereby extend an invitation to anyone who reads this, who is assigned to a division of the Continental Army Command, to send me a personal letter any time he has a constructive idea or illuminating experience dealing with the implementation of the Mobile Forces Concept! I assure you that your thoughts will receive my personal interest!

As you think about the use of mobile forces and work with them, do not judge lightly what can be achieved by small changes in combinations of weapons and men. Never judge lightly the value of the *small* variation from the conventional! Laymen may believe that wars are won by technicians in laboratories, by secret weapons, and such. But you and

[1]Training Memorandum Number 13, 4 June 1956, subject: "Organization and Training for Mobile Task Force Type Operations (RCS ATTNG—288)" distributed by CONARC 4 June 1956. Charts for Mobile Battalion, Type A; Mobile Company, Type B and Mobile Platoon, Type C are included. For a discussion of platoon-size task forces see "Small-Unit Task Forces," page16. "How Would You Do It?", page 93, gives a practical exercise in the use of a small mobile task force.

I should know our military history better. The products of the technicians are only tools! New tools change the complexion of battle, but not its character. No army long enjoys a monopoly of any weapon; the secret of today is just another tool of the trade tomorrow. It's by *combinations* of weapons and men that wars have always been won; and *small variations from conventional combinations* — adopted in advance — have determined the victor in the crucial battles of all time!

In 1939 the German Army enjoyed no great numerical superiority over the Anglo-French forces in either tanks or troops. But a small variation from the conventional in the way the Germans had *combined* their tanks and men into panzer formations resulted in blitzkrieg!

Initially, Napoleon's arms and troops were vastly inferior in quantity and quality to those of his enemies. But he combined what he had in a small variation from the conventional, and could not be defeated until his opponents adopted his ideas.

A variation of just a few yards in combining weapons and men won and held an empire for Rome. Against the conventional phalanx of the ancient world, the Roman Legion adopted an open interval of a yard or two between men in their battle formation. The individual freedom of action and the flexibility of maneuver resulting from this small variation rendered the Legion invincible for centuries against conventionbound foes!

The broad truth is that the evolution of all mankind is just a succession of small variations from the norm. Even in the frivolous realm of women's beauty aids, all that it took to make a million dollars was just a *small wrinkle* in a conventional piece of wire! . . . That is what we seek now with our Mobile Forces Concept: the *"million dollar wrinkle" — the small variation — that will evolve a winning combination of weapons and men!!*

Now let us aim our minds on a human target for constructive thinking — here are a few questions to bracket you in:

What about the *men* of our winning combination? . . . *Who* will inspire them with the courage to face the fury of atomic blows without wavering from their duty to God and Country? . . . *Who* will evoke the fortitude to endure the long periods of unit isolation and the physical hardships that will be normal to combat? . . *Who* will teach them the skills they will need to fight a fanatical and tenacious enemy? . . . *Who* will integrate them and their weapons into tight-knit, hard-punching battle teams? . . . And *who* will generate the enthusiasm that gives a team a soul?

Who will lead them?

Yes, my final target for your constructive thinking is YOU! . . . I suggest that you begin by considering the matter of your own professional competence. Never have the demands of our profession been more comprehensive. In one company-size Mobile Force you will control more firepower than did the great "Iron Duke" at his victory of Waterloo! No longer is it enough for the rifle company commander to know how to fight his three rifle and his weapons platoons. Professional competence today means that you must have intimate knowledge of the capabilities, techniques and tactics of all arms in the Infantry Division. Tomorrow, you may be commanding almost any combination of them in battle.

Only by continually advancing your military knowledge will you stay abreast of the constant evolution in warfare. Only by diligent study, observation and practice will you fit yourself for the ever-increasing responsibilities of combat command.

School never closes for the military

leader. With imagination, you can find a classroom anywhere. There is a terrain study in every plane trip, a road reconnaissance in every automobile ride. Any time you stroll outside, you can be on a "tactical walk," and there's a small-unit problem in view from every window of your house.

Those of you who command or who will soon command troops are especially fortunate. No school of command can ever duplicate the experience of command. It develops habits of decisiveness, poise and self-control essential to the role. I urge that all of you ask for command assignments whenever you have an option and let the staff jobs come to you.

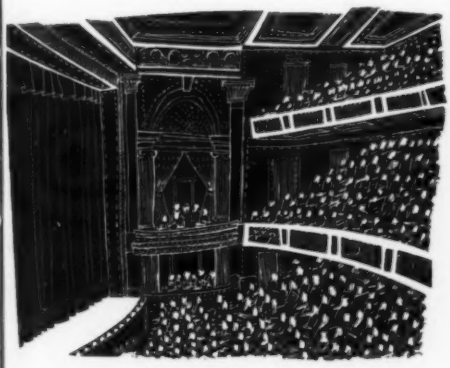
A word about your relation with your subordinates. Remember the value of pooling creative thought. The total intellect, energy and experience contained in any battalion would exceed that of Frederick the Great. By proper leadership, often you can focus it with dynamic results. And don't forget to include the man in the rear rank. Who knows, there may be another Homer Lea standing there unheard.

In one small unit of the Sixth Army that I visited recently, I found 5 privates —all selectees with master's degrees in architecture—just aching for their brains to be picked. But never scorn a good idea just because the donor hasn't a degree or high AGCT score. An automatic rifle was invented by a village mechanic!

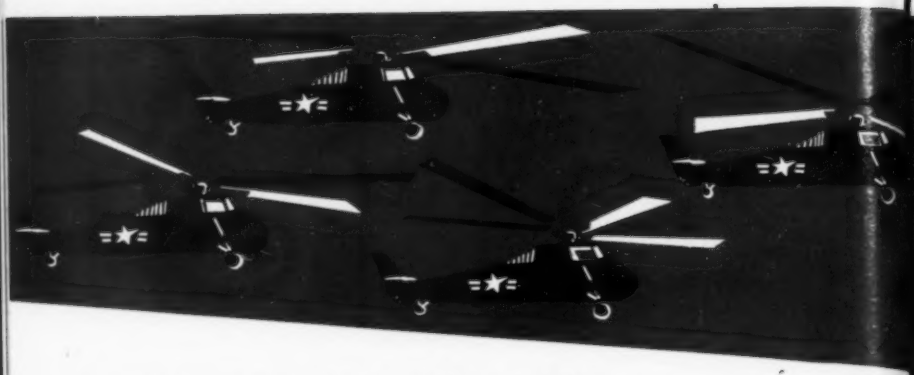
In the course of these remarks, it has become obvious, I am sure, that a vital element is missing from the formula for atomic operations which I cited in the beginning. The formula, you'll recall, is: "Mobility + firepower + communications = superior force at the point of decision." . . . Like many formulas, this one requires a *catalyst*. It's a catalyst that only *you* can furnish. It's that spark of the human spirit called leadership!!

With dedicated leadership — and full acceptance of the obligation we all have — to think — we will continue to win our Nation's battles the way we have always won them: *in advance*.

PACKED HOUSE!

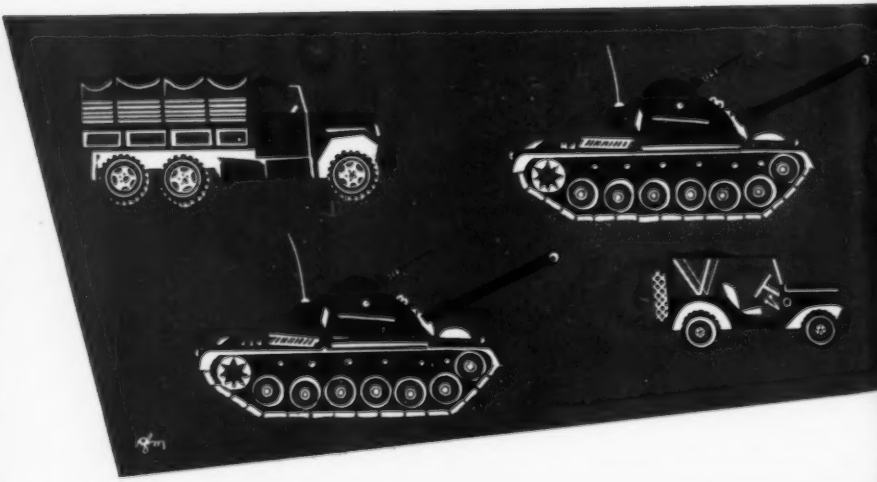


Here's your chance to speak to more than 12,000 *Quarterly* readers around the world. If you have a good idea that will help other Infantrymen, let us know about it. We'll guarantee you a packed house and we'll pay you for your performance. Write: Editor, The Infantry School Quarterly, Publications & Visual Aids Office, The Infantry School, Fort Benning, Ga.



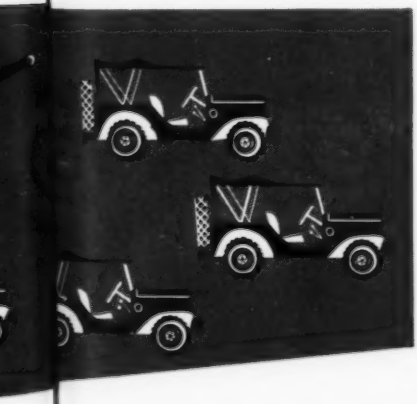
By Capt Thomas H. Jones and Capt Aaron C. Adkins

SMALL UNIT TASK FORCES



Mobile task forces are a key to tactics on the atomic battlefield.

This is the first of three articles n task forces and the mobile concept of erations. The emphasis in this article is platoon-size forces; subsequent ar- cles will discuss company- and battalion- e forces. Every soldier today is vitally ncerned with the impact of atomic apons on tactics. These articles will lp Infantrymen to better understand is impact and will direct their thinking ward the future — which is where our inking belongs.—Editor



At 0915 on 6 August 1945, the first atomic bomb used in warfare dropped from the bomb bay of the B-29 "Enola Gay" on the city of Hiroshima, Japan. It destroyed 60% of this busy manufacturing and port city of 343,000 population; killed 78,000 and wounded 37,000 (these casualties roughly equalling the combined population of Columbus and Fort Benning, Georgia). More than 13,000 were reported missing and 200,000 were left homeless. This explosion, moderate by today's standards, and the one over Nagasaki three days later hastened the end of the greatest war mankind has ever known.

But they did more than that, they opened a new era in warfare and began the search for doctrines, organizations and material which will enable the Army to take full advantage of tactical atomic weapons and to protect itself against their use by any enemy. This search, well advanced, goes on; new weapons, units and tactics are being evolved and tested. But we cannot wait. We must apply future trends to our existing organizations and training programs so that our professional preparedness for atomic war

CAPT THOMAS H. JONES, an instructor in platoon and company tactics at The Infantry School, enlisted in the Army in 1943 and was an intelligence scout with the 78th Infantry Division in Europe during World War II. He received an OC commission at Fort Benning in 1945, following which he was assigned to an AAA battery at Fort Bliss and later to the 2d Armored Division at Fort Hood. He was a reconnaissance platoon leader with the 1st Armored Cavalry Division in Korea. In 1952, he served in the G3 Section, OCAFF, and then completed the advanced course at The Infantry School. After a tour as assistant G3 with the military advisory group to Saudi Arabia he studied Portugese at the Army Language School. Capt Jones began his current assignment in July of this year.

CAPT AARON C. ADKINS enlisted in the Army in 1943 and received a battlefield commission two years later. During World War II, he was a platoon leader and company executive officer with the 274th Infantry, 70th Division, in the European Theater. He again saw action in Korea from November 1950 to January 1952, serving in three company and three battalion assignments, including battalion commander, with the 8th Armored Cavalry Division. After completing the advanced course at The Infantry School in 1953, Capt Adkins instructed in platoon tactics at Fort Benning until May of this year.

will be hastened. What are these trends for which we must prepare? They can be summed up in two words — dispersion and mobility — but they greatly affect many facets of our organization and operations at platoon level, as well as at higher echelons.

The destructiveness of atomic weapons will necessitate unprecedented dispersion of major units. While battalion-size units are presently considered to be the smallest capable of sustained semi-independent operations, platoon and company operations will be markedly affected by the increased isolation of the battalion.

The use of far-ranging motorized or helicopterborne task forces for reconnaissance, security and limited attack and defense missions will become conventional, and will place greater demands on the knowledge, initiative and over-all leadership of the small-unit leader. Increased dispersion also entails increased reliance on radio communication and the consequent need for leaders well acquainted with radio procedures, nets, operation and characteristics. Presently envisioned defensive dispositions will consist of well-dispersed battalion strongpoints in great depth backed up by strong mobile reserves. Small task forces will be needed to reconnoiter areas not occupied, to maintain contact between strongpoints, to execute long-range patrols and to protect supply columns and installations.

Dispersion will bring the organization of more complex combined-arms teams at lower levels than has previously been normal so that sufficient fire and service support will be readily available. This will demand a greater understanding by small-unit leaders of the employment of artillery, armor, army aviation, engineers and reconnaissance units. Future operations over extended areas will place even greater stress on map and compass work. While we have here accepted the idea of battalions remaining fairly concentrated, it is certainly not improbable to expect that with ever-increasing atomic stockpiles and accompanying growth in families of atomic weapons we will find battalions becoming lucrative atomic targets. This could force the wide dispersion of companies and consequently even greater reliance on small-unit task forces.

Attack will be characterized by rapid concentration of widely dispersed forces at the critical place and time, and prompt dispersal after the attack; *defense* by sudden and violent attack (by reserve and/or atomic weapons) on enemy forces

that have been forced into ground of our own choosing by our system of strongpoints. This doctrine demands mobility. Small-unit leaders, as commanders of the basic components of the larger forces involved, will be vitally concerned with the increased emphasis on mobility and fluidity of operations. Speed and timing will be essential to make the most of our use of atomic weapons. Small-unit leaders may expect to receive only brief, fragmentary orders for the execution of difficult tasks. Through study, thought and training, they must be ready to perform those tasks. Units will be moved frequently to prevent the enemy from locating and destroying lucrative targets. Understanding of the capabilities, limitations, operation and maintenance requirements of wheeled and tracked vehicles will be essential.

To the Infantry platoon leader and his men, the trends stated above all add up to a need for study and training in small-unit-task-force organization and tactics. General Willard G. Wyman, commanding general of the Continental Army Command, has directed that units train in task-force operations with present organizations and within present training programs. Most of us will become involved in this training at one time or another. In this way we will develop better task-force organization and tactics, increase training interest and stimulate thinking towards the future. We will be training in tomorrow's operations today, which, of course, is as it should be.

What specifically is a task force? It is defined as a temporary grouping of units under one commander to accomplish a specific mission. The term can cover a vast range in strength, composition and missions, from an Infantry platoon reinforced with a tank section to secure a bridge to a vast naval armada sent to engage an enemy fleet. We are concerned in this article with the platoon-size end of that range and, more specifically, with the Infantry platoon reinforced.

The use of task forces is far from new. In prehistoric times when a group of rock men got together with a group of pointed-stick men to engage a mutual enemy, the task force was born. When Alexander the Great flanked his phalanx of spearmen with bodies of cavalry, he had a task force. Consider this quote from a combat bulletin of a unit in Korea: "Small task forces composed of Armor and Infantry are used to open blocked supply routes." So throughout history groups of different arms or different units have been formed to do a certain job. Actually, in our conventional small-unit training today, when we attach a 57mm rifle squad to a rifle platoon in an attack we are forming a task force, though certainly a simple and dependent one. So even in possible nonatomic wars of the future, the task force will play an important part; training in their handling will prove valuable.

To recommend intelligently what is needed to accomplish a certain mission, and to employ more capably what is given to him, the task-force commander must understand what factors influence the organization of a task force.

A task force is tailormade to accomplish a certain mission for which a TOE unit is not suitable. Therefore *mission,* as always, is our dominant consideration in organizing a task force. Adequate direct and indirect fire support, a maneuver element of sufficient strength, and appropriate command and control personnel must be included to insure the efficient accomplishment of the mission. Notice the term "efficient accomplishment." If we send too much, we waste manpower and get into control complications; if we send too little, we may not be able to do the job. Consider this example. A task force was formed to resupply and reinforce a surrounded regimental combat

team. The only route was through a narrow defile dominated by steep hills on each side. Speed was imperative. The task force advanced with Infantry riding atop all but the lead tank. Enemy positioned along the hilltops opened up with small-arms fire. Many Infantrymen were shot off tank decks, others were knocked off by traversing turrets. The remainder jumped in ditches and were left behind by the column. The tanks punched through and reached the encircled RCT. The task force did not require the quantity of Infantry sent. What the mission called for was a fast breakthrough with rations and ammunition. The mission was not considered carefully enough.

The type of ground over which the task force will operate will affect the number and type of vehicles used, the ratio of men to weapons and the types of weapons, units and equipment to be included. Terrain is therefore an important consideration. The composition of a task force (and the range of its operation) for employment on the north African desert will be quite different from that which would be used in the mountains of Italy.

The *enemy* is also a primary factor affecting our task force. Here's an example: The 3d Rifle Platoon of Company B, with two tanks attached, was to secure the bridge on the main supply route 4000 yards to the south. This force moved without incident until 500 yards from the bridge, where both tanks were destroyed by enemy fire and the Infantry was either killed or captured. Enemy strength was underestimated, and failure resulted. We must consider, also, the type of strength; if the enemy is strong in armor, we must include antitank units or weapons in our task force.

A commander, at best, can exercise efficient control over eight directly subordinate leaders — and probably fewer at platoon-leader level. The optimum number is four or five. In organizing a task force, this *span of control* must be considered if we are to avoid placing an unmanageable number of units under the task force commander. It's like a father at the beach. He may be able to handle four or five youngsters, though with difficulty, but give him eight or nine and he and they will be in trouble.

Adequate means of *communication* are essential to insure effective control of the task force. If sufficient communication equipment is not organic to elements of the force, it must be provided by higher headquarters.

The training of a TOE unit develops esprit, teamwork and efficiency within that unit. There is a direct relationship between these qualities and *tactical integrity*. Consequently, a task force should be so organized that its units retain the maximum amount of tactical integrity commensurate with the other necessary organizational factors.

The composition of a task force is obviously dependent on the *forces available* for it.

Mobility is another of its most important assets. Weapons, equipment and vehicles assigned to a task force must be considered in the light of their effects on mobility. The entire mobile concept hinges on this.

To get an idea of the practical application of the above factors to the organization of a small-unit task force, consider this situation:

We have used atomic weapons tactically and have halted to resupply. Numerous small enemy groups, none of which exceeds two rifle squads in size, have been bypassed. Some enemy light tanks may be in the area. Terrain is gently rolling and permits wheeled vehicular movement on numerous roads and trails. Your mission is to destroy the isolated enemy groups to our rear. Consider these two

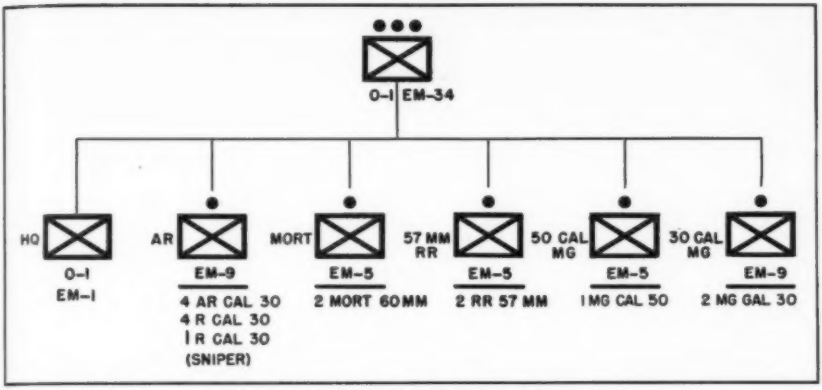


Figure 1. Possible Task Force Number 1.

Note: A rifle squad will be equipped to form the automatic rifle squad. A 60mm mortar squad and a 57mm rifle squad will be equipped with one additional mortar and one additional 57mm rifle. The .50-caliber machinegun squad consists of a squad leader, gunner, assistant gunner, and two ammo bearers. Communications: one AN/PRC 10 radio; four AN/PRC 6 radios. Transport: One 2½-ton truck; five ¼-ton trucks. Vehicles and radios provided by company or higher commander. The one EM in Hq is an aid man.

task forces for this job (Figures 1 and 2). Which would you choose?

An analysis of the first possible task force indicates the following strengths and weaknesses:

Strengths:

Adequate antipersonnel direct and indirect fire support.

Within desirable span of control.

Adequate transportation (a 2½-ton truck carries 20 fully equipped men) and communications.

Weaknesses:

An inadequate maneuver element (AR squad only).

Too little antitank strength (grenade launchers only).

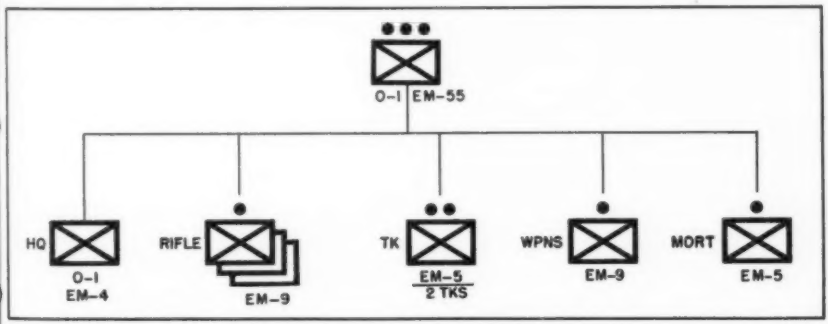


Figure 2. Possible Task Force Number 2.

Note: Headquarters consists of the platoon leader, platoon sergeant, assistant platoon sergeant, messenger and medical aid man. Other units of the platoon are organized and equipped according to the TOE. Communications: Two AN/GRC 8 radios (tanks); one AN/PRC 10 radio; five AN/PRC 6 radios. Transport: One 2½-ton truck; four ¼-ton trucks. Vehicles and radios provided by company or higher commander.

Poor foot mobility (the mortar, 57mm-rifle and .50-caliber machinegun squads cannot supply sufficient ammunition for their weapons while operating on foot).

The tactical integrity of the platoon (two rifle squads, the 3.5-inch rocket launcher team and most of the command group not used) and of the company (two-thirds of the company's supporting weapons used) has been unnecessarily destroyed.

Inadequate command and control personnel. (Platoon sergeant, assistant platoon sergeant and messengers are not included.)

The second possible task force has the following strengths and weaknesses:

Strengths:

A strong maneuver element (two tanks and three rifle squads).

Adequate direct and indirect fire support.

Antitank strength.

Sufficient command and control personnel.

Tactical integrity maintained by the rifle platoon except for the absence of the 3.5-inch rocket launcher team.

Within the desirable span of control and simple in organization.

Adequate transportation (note that the presence of tanks allows the transportation of all personnel with fewer attached vehicles).

Very good communications.

Weaknesses:

The splitting of a tank platoon to provide one section for this task force may not be the best utilization of tanks from the higher commander's point of view.

Leaving the rocket launcher team deprives the task-force commander of a good portable fire-support weapon, even though the tanks should provide sufficient antitank strength.

These are two possible task-force organizations; there are innumerable combinations of units and weapons, even at platoon level, that may be put together. The secret of good task-force organization is using the proper balance of these units and weapons, plus sufficient control and service support. Finding the ideal balance for any type of situation that may occur is not easy. It requires extensive study and training. As General Wyman states in "Let's Get Going on Our New Combinations for Combat," *Army*, July 1956, "It is most important to experiment further in the organization and training of such forces (mobile task forces) in our combat units as organized today. This will give units the opportunity to develop strong leaders with the proper education and experience in the employment of a mobile force. This will also afford an opportunity for practical development of sound tactics, techniques and doctrine."

Working under the mobile-task-force concept will also require greater concern by the small-unit leader for administrative and logistical considerations. Many things formerly taken care of by company and higher headquarters automatically become the direct concern of the platoon-size task-force commander preparing for a semi-independent mission. His distance from parent headquarters will complicate resupply and make it difficult for him to procure supplies or information he neglected to obtain prior to departure. He must insure that his force has adequate ammunition, rations, water (or purification chemicals), extra batteries for radios, medical supplies, maps and other equipment; that his vehicles operate properly and have enough gas and oil; that he knows all pertinent friendly and enemy information, radio channels and call signs and resupply and evacuation procedures; that his communications are set up and working, both within his task force and to his control

ling headquarters. There is much to be done in readying this force for action, and frequently he will have little time in which to do it. This means increased reliance on the abilities and initiative of noncommissioned subordinates and intelligent allocation of specific tasks to such men as the platoon sergeant and assistant platoon sergeant. The leader who tries to do it all himself is doomed. He will become bogged down in details and have no time for careful planning or effective over-all supervision.

Imagine that your task force has been organized, the components of it are assembled, and your attached vehicles arrive. You're ready to load up and move out. Or are you? What units and weapons go in what vehicles? What leads off? Where do you want to be? What is the best sequence of vehicles in the column? Is it a matter of just ordering, "load up!" and moving out in the order the vehicles arrived, or a matter of careful planning and inclusion in your order? Certainly, it's the latter. Your system of loading and the order of march have great bearing on the success of your mobile task force.

A commanding general of the Eighth U.S. Army in Korea noted, "An indiscriminate mingling of vehicles in motor columns in the immediate battle area which materially hampers the rapid development of the punch available to commanders at all echelons," and commented, "The arrangement of tactical vehicles within a column must be carefully planned." True. But how? Again, we can isolate certain factors to be considered. The loading plan and order of march are closely interrelated so the following considerations apply to both:

Tactical integrity: Keeping elements of the same unit together to insure the most effective utilization of that unit.

Control: The ability of the commander to get a desired action from subordinate units or individuals in a minimum length of time.

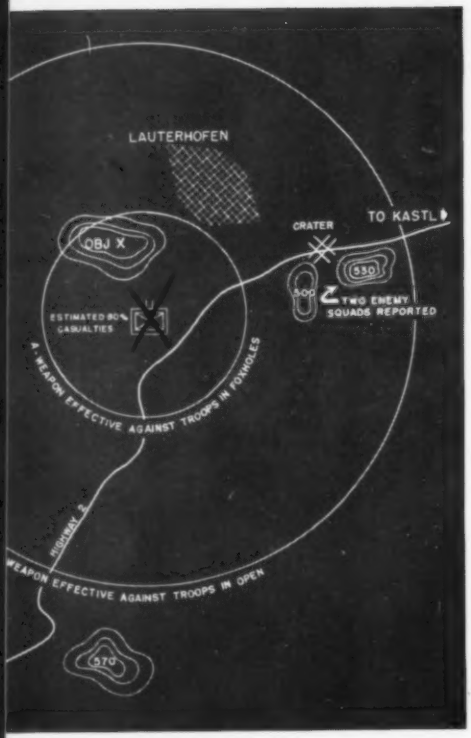
Security: The prevention of surprise and the ability to meet an enemy threat with the appropriate counteraction wherever or whenever the threat develops.

Order of expected use: The positioning of task-force elements in a sequence from front to rear which generally corresponds to the task-force commander's plan for the sequence of employment of these elements to accomplish his mission. For example, direct-fire weapons are generally toward the front of a column, indirect-fire elements toward the rear. The order of expected use against enemy encountered during the task force's move to an objective area is also considered.

Certain factors mentioned under organization of a task force are also pertinent to the loading plan and order of march. Tactical integrity has been listed as an organizational consideration and also as a consideration in planning, loading and order of march. The mission, terrain, means of communication, forces available and enemy situation also are pertinent to the loading plan and order of march as well as to the organization of a task force.

The loading plan and order of march should strike an appropriate balance between the above noted factors since, as is usually the case in tactics, unreasonable adherence to one principle entails partial or complete sacrifice of other principles.

The actual employment of a task force in contact with the enemy follows very closely our published doctrine on attack, defense and retrograde movements. The principles and techniques covered in existing programs are certainly applicable to task-force fighting, and we need not say much about them here. Any variance is principally in degree of emphasis or due to the fact that a task-force commander has a greater share of his support directly



Sketch Map A.

under his control. Task-force operations demand speed in movement to contact and aggressive development of a situation, but the Infantry will still dismount to fight. Our basic offensive principle of fire and maneuver and our fundamentals of defense, as well as our reconnaissance and security techniques, are definitely applicable to task-force employment. For example, three methods of movement for motorized patrols are given in FM 21-75, "Combat Training of the Individual Soldier and Patrolling." These are successive bounds, alternate bounds and continuous movement. The same three methods of movement are applicable to the leading elements of small-unit mobile task forces.

We are now at the point where the birth and use of a platoon-size task force can be followed as it forms and then accomplishes a mission typical of predicted small-unit missions in atomic warfare. Here's the situation:

The 1st Battalion, 85th Infantry (reinforced), is ordered to move to Lauterhofen (see sketch map A) and then continue the advance along Highway 2 to Kastl. No civilians are in Lauterhofen. While advancing along Highway 2, the leading elements meet resistance. Air observation reports a strong enemy force, a battalion or larger, in the vicinity of Lauterhofen. An atomic weapon is exploded over this force with results as shown on the sketch. Lieutenant Colonel, 1st Battalion, forms a company-size force (Task Force Alfa) to seize objective X.

Aerial observers also sight a small enemy group, possibly two squads, digging in on Hill 530 and report that the enemy has cratered Highway 2 near Hill 530. The battalion CO decides to organize another, smaller mobile task force to take Hill 530 and protect an engineer party which will be sent to repair Highway 2. Two rifle platoons of Company A, 85th Infantry, form part of Task Force Alfa. The platoon leader of the remaining rifle platoon is called to Hill 570 to see the battalion CO, who says, "You're taking a task force to seize Hill 530 from an estimated two dug-in enemy squads and protect an engineer party which will come forward to repair Highway 2. You'll have your platoon plus:

"One antitank section (two 106mm rifles).

"One section of self-propelled AAA automatic weapons (one quad 50 mounted on a half-track and one twin 40mm on a light-tank chassis).

"Whatever your weapons platoon leader (in charge of the remaining elements of Co A) wants to give you.

"Sorry there are no tanks available for you. You'll get two 2½-ton trucks and

four ¼-ton trucks for this mission, as well as five AN/PRC 6s and one AN/PRC 10. It's 0900. Move out at 1000. Can you do the job with this force?"

As usual, the platoon leader had the last word. "Yes, sir," he said and got busy. He requested and got a 60mm mortar squad from the weapons platoon leader for readily available indirect-fire support. He decided what had to be done in the hour he had available. This included:

Coordination with the pioneer-and-ammunition-platoon leader on ammunition; the communications officer regarding extra radios, channels and call signs; and the heavy weapons company commander and AAA platoon leader regarding when and where their sections would report for attachment to the task force.

Planning and map reconnaissance.

Issuance of his order.

Assembling and checking his vehicles and attached units.

Issuance of radios and arrangement of internal and external communications.

Checking readiness of his platoon.

He used his platoon sergeant to meet, position, check and orient the attached AAA and antitank sections (which are completely motorized), the 60mm mortar squad and the attached vehicle drivers. The platoon sergeant also set up the task-force radio net with help from the battalion communications officer. The assistant platoon sergeant insured the platoon's readiness for action and procured and issued ammunition and other supplies. The task-force commander made the necessary coordination, then studied his map and planned. He organized his task force as shown in Figure 3.

The platoon leader then decided to:

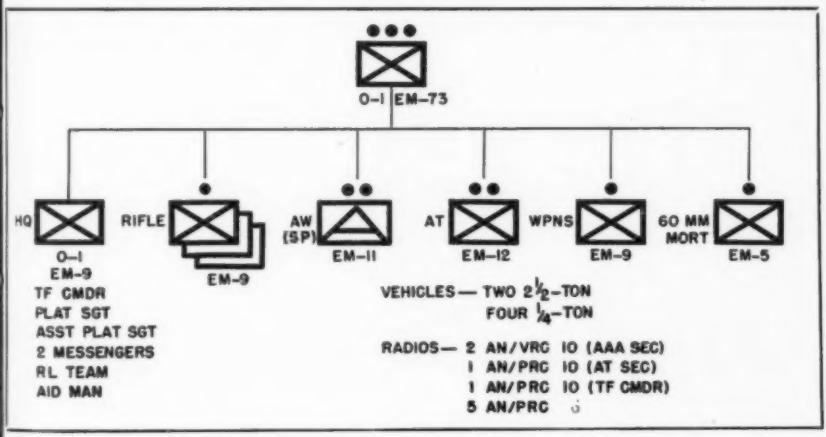
Issue his order to his subordinate (organic and attached) leaders at 0930, thereby allowing them some time to issue their own orders and load up.

Place his supporting weapons on Hill 500 and maneuver right with his rifle squads. (A tentative plan for seizing the objective should be made at this time. It is naturally subject to modification once the objective area is reached.)

Load and place his vehicles in column as follows:

First, second and third vehicles: ¼-tons containing first rifle squad. The 3.5-

Figure 3.



inch rocket launcher (no crew) from the AT section also was given this squad for close-in antitank protection. One AN/PRC 6 with this squad.

Fourth vehicle: ¼-ton containing task-force commander, two messengers and an AN/PRC 10 and an AN/PRC 6 radio.

Fifth vehicle: 2½-ton truck containing second rifle squad, weapons squad minus one LMG team and the platoon's rocket launcher team. Platoon sergeant in charge with AN/PRC 6 radio.

Sixth vehicle: Twin 40mm gun squad. AN/VRC 10 radio (nets with PRC 10).

Seventh, eighth and ninth vehicles: AT section with PRC 10.

Tenth vehicle: Quad 50 half-track with AN/VRC 10 radio.

Eleventh vehicle: 2½-ton truck containing the third rifle squad, one LMG team and the 60mm mortar squad (with AN/PRC 6 radio). Assistant platoon sergeant in charge with AN/PRC 6 radio.

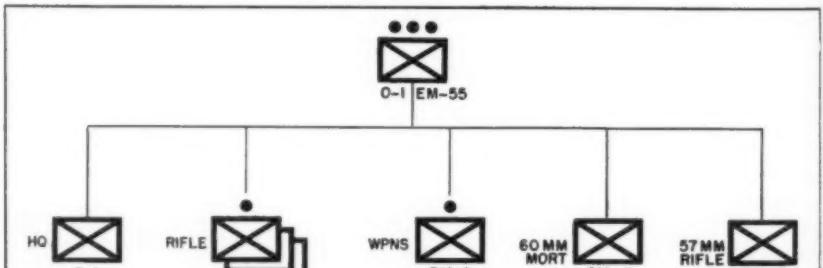
The task force left on schedule, moved rapidly to the objective area without incident and, properly supported from Hill 500, assaulted, captured and organized Hill 530. The engineers came forward and repaired Highway 2 under protection of the task force. The mission was accomplished, and naturally so. The task-force commander knew what he was doing and planned and executed well.

Mobile task forces will not be limited to motorized operations. Helicopters undoubtedly will be used to move task forces in future combat.

Let's look at a helicopterborne operation:

Our forces have just seized Smithville (sketch map B). Aggressor forces have destroyed the only bridge in the vicinity across the Blue River. Our engineers are constructing a pontoon bridge at the old bridge site and expect to have it completed in two hours. The regimental commander has ordered the formation of a battalion-size task force to cross the bridge immediately upon its completion and proceed along the axis of Highway 284 to seize Keystone Airfield. An atomic weapon will be detonated over the enemy battalion-size strongpoint near the Red Stream bridge in one hour, effectively reducing that potential resistance. The regimental commander is concerned, however, about enemy demolition teams moving into the area after the atomic explosions and destroying the Red Stream bridge, thereby blocking the task force's axis of advance. He consequently orders the formation of a platoon-size task force with the mission of moving to the bridge site immediately after the atomic explosion and organizing around the Red

Figure 4.



Stream bridge to prevent its destruction. He allocates five H-34 helicopters (12-man capacity) to this force. The task force shown in Figure 4 is formed.[1]

The task-force commander quickly assembles his task force, makes his plan and issues his order. He loads his force as follows:

First helicopter: First rifle squad and rocket launcher gunner and assistant gunner.

Second helicopter: Second rifle squad, task-force commander and two messengers.

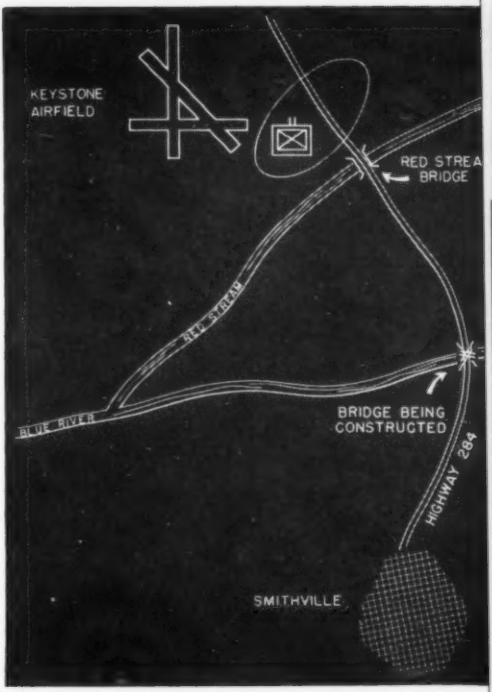
Third helicopter: Weapons squad, platoon sergeant and aid man.

Fourth helicopter: Third rifle squad and the two remaining members of the rocket launcher team.

Fifth helicopter: 60mm-mortar and 57mm-rifle squads and assistant platoon sergeant.

The force is airlifted to the vicinity of the bridge, seizes it and organizes to defend it. This small-unit force insures the uninterrupted move of the large task force sent to capture Keystone Airfield.

The leadership of small mobile task forces must be of the highest caliber. Knowledge, decisiveness, imagination and intelligence are required. Aggressive seeking of enemy information is essential. A paragraph printed in red at the head of every chapter of the former Japanese Staff Officers Field Manual is a good one to keep in mind. "Commanders and staff officers who do not receive prompt information will go to the front and get



Sketch Map B.

it. No officer of the Imperial Army is so valuable that he cannot be replaced if he becomes a casualty."[2]

The pattern of future operations has been outlined. Today's small-unit leader must, through study and training, develop the flexibility of mind and acquire the knowledge necessary to lead intelligently small-unit task forces on the battlefield of tomorrow.

[1]This is the same organization depicted as the Type C force in General Wyman's article "Let's Get Going on Our New Combinations for Combat." *Army*, July 1956. In that article it was motorized but it is an organization admirably suited to helicopter lift as well.

[2]Quoted by Lt Col Stewart A. Baynes in "Task Forces," CGSC Military Review, May 1944.

Only if our leaders take the imaginative approach to every problem, and translate creative thinking into dynamic action, can the Army be fully ready to meet the challenge of the future.

SECRETARY OF THE ARMY WILBER M. BRUCKER

Leadership at the "cutting edge"
of any battle
rests with our youngest and
least experienced commanders.
We must select them carefully
and train them well.
And we must find ways
of teaching the application
of leadership principles
rather than theory.

Leadership FOR INFANTRY

By Col O. Z. Tyler

Much has been written and said about leadership — especially military leadership. There are literally hundreds of books on the subject and an even greater number of inspiring "quotes" from the world's greatest leaders. We have two excellent field manuals, FM 22-10 and FM 22-100, which set forth and elaborate to some extent established principles and techniques of leadership. But in spite of all these efforts there exists a wide gap between accepted principles and practical application — especially at the small-unit level. And yet, this is exactly the kind of information that is needed most.

The final pay-off of winning battles rests with our youngest and least experienced commanders. It is our most junior commander who actually takes or holds the ground. Battle leadership at his level —out at the "cutting edge"—is a most personal and demanding thing. We must make sure that our young officers and noncommissioned officers have strong leadership potential and we must help them to develop it.

The question of whether a leader is

Col Orville Z. Tyler, Jr. was graduated from the United States Military Academy in 1931. He served as a staff officer with the 94th Division and then in the Assignments Branch, G1, Army Ground Forces. Upon graduation from the Army and Navy Staff College in 1944, he became a staff officer in Hawaii and then entered combat as a battalion commander in the Pacific Theater. He next became executive officer, 307th Infantry Regiment, and later, G4, 77th Division, in that theater. After taking part in the occupation of Japan and duty in South Korea, Col Tyler returned to the United States and spent three years as a member of the staff and faculty of the Command and General Staff College. He then went to Europe where he commanded the 8th Infantry Regiment and later was chief of staff, 4th Division. Upon graduation from the Industrial College of the Armed Forces in 1954, Col Tyler was appointed director of The Infantry School's Staff Department. Last May he was named chief of staff of The Infantry Center.

born or made has not been answered conclusively. But most thinking people agree that sound application of leadership principles can make for more effective leadership. Almost any person can learn to capitalize on desirable traits and to avoid or minimize personal weak points in order to enhance his ability to lead others.

Leadership principles, like the principles of war, are frequently vague and high sounding. For our young officers and noncommissioned officers practical application of the principles, not flowery phrases, is the essence of developing leadership ability. We must find new and better ways of showing them how to apply these principles.

The Infantry School has always played an important part in the development and teaching of leadership doctrine. It continues to do so. At the present time certain new ideas on leadership training are being used. Some of these ideas are incorporated into a leader's reaction course which is given to all basic officer and advanced noncommissioned officer classes. We know from history and from our own observations and experiences that in time of disaster, or emergency or in the face of a real problem of any sort some individual usually rises to the occasion. He steps forward from the group, gives directions and gets things done. In short, he is a leader. And he might be the last individual in the group you would expect to display such ability. The leader's reaction course takes this into consideration along with many other factors required in finding and developing leaders. For this course students are divided into teams or working groups. Each group is confronted with a variety of practical tasks which it must attempt to solve within a given time limit. These tasks are tough. They require knowledge, imagination, ingenuity, a plan of action, teamwork and above all the direction and supervision of a good leader. In at least one situation no leader is designated. As in the case of a real emergency the leader must emerge from the group. In other situations the leader is specified and the leadership slot is rotated so that each officer's or noncommissioned officer's abilities can be observed. In every case leadership ability is absolutely essential for the group to succeed. This course quickly shows the student that there's more to being a leader than simply wearing bars or stripes. It demonstrates that he must have certain basic knowledge and that he must be able to think, plan, direct and supervise.

If the student does these things properly he uses many of the leadership prin-

ciples which he has been taught in the classroom.

Another effort at The Infantry School is the insertion of "tricks of the trade" into the fabric of all leadership instruction. We want to discuss some of these tricks of the leadership trade because they incorporate much of the "know-how" of leadership and permit sound application of the principles. But before we do so let's consider very briefly a few of the characteristics of leadership.

Referring to the attributes of a leader, Army Chief of Staff General Maxwell D. Taylor has said, "If I were asked what were the most important characteristics of the great military leaders whom I have known, or have studied, I would be inclined to respond that these commanders all have had at least three characteristics in common. First, they had the gift of human understanding. Next, they were men outstanding for their obvious professional competence. And finally, they were men of strong and independent character. . . .

"I believe that, if you will read the pages of history carefully, you will find that no American commander ever rose to greatness who did not have this capacity — the ability to convince his men that he put them first and prized them above all else. In other words, they have had the gift of human understanding. . . .

"Every great soldier has succeeded in convincing his men that he knows and respects them as individuals. To accomplish this end he goes among his men, freely mingling with them and giving the soldiers a chance to look him over and size him up. An officer who barricades himself behind his rank is properly suspected of having weaknesses to conceal — probably more than he really has. The successful commander claims no infallibility and is not afraid to expose himself to close view. Instead, he is often seen among his men. He learns their surnames and calls them by name at every opportunity. . . .

"The second of the trio of virtues of the successful leader is personal professional competence. The leader must know his business and the men must know that he knows. War is a terribly serious matter and our soldiers want their lives protected by experts. There may be the tendency to belittle the professional soldier in time of peace; but when war comes, our citizens want to feel that their destiny is in the hands of professionals. To become this professional, an officer must devote his life to constant study and self-improvement. He will need to prepare himself by study, by actual command of small units and, most importantly, by unending reflection on the exacting requirements of professional leadership in future war. . . .

"Even with the gifts of human understanding and of professional competence arising from careful training, our military leader will not be complete without the third attribute of greatness; namely, character — character which reflects inner strength and justified confidence in oneself. To give an impression of strength, a leader must consider his personal appearance, his physical condition,

his tone of voice, his method of life — all of those things which give an impression of his character to those who follow him. This does not mean the development of an artificial personality. All of us have certain basic traits which are given us at birth. We all have a core of personality which cannot be tampered with but which can be constantly developed. A facade of sham will not serve. If you would have your troops believe that you are strong, you must be strong. If you would teach them to be rugged, you must avoid the soft life yourself. If you would have your men be brave, you must yourself set an example of valor."

These are the prerequisites as they are seen by the Chief of Staff. They are basic qualifications which an officer must develop before he can be a true leader. If he has these qualifications (or is developing them) there are numerous techniques and "tricks of the trade" he can use which will help him.

Some old soldiers may object to the term "tricks of the trade" in referring to leadership; they feel that leadership has no place for trickiness. And, in a certain sense, they're right. Slyness, deception, bluff, the false front are the bungling commander's ways of concealing his lack of leadership ability. But the commander who uses proved techniques to develop a realization in his unit that the Old Man is always on the job seeing to it that rations come up in time, that mail is never delayed, that the best possible bivouac area is selected attains the epitome of leadership — the faith of his men. For such a commander "tricks of the trade" are the innumerable ways in which the true leader establishes his personality in the minds of his men.

Let's look at a few of these techniques and "tricks of the trade." Some may succeed only because of a commander's exceptional personality; others involve frequently occurring situations and, with normal application, will generally succeed. Commanders should use as many of these techniques as possible, emphasizing, of course, those most suited to their own personalities.

The first six of these techniques are steps in the process of command management. They are used, consciously or

unconsciously, in getting any job done. The real leader understands and constantly applies these techniques.

1. *Set the objective.* This is unquestionably the province and duty of every commander. Even when given a directive from a higher authority, the commander sets the standard of accomplishment. Inspection and training tests notwithstanding, if the leader sets goals too low, or is satisfied with mediocre achievement, the unit is bound to fail. After objectives are determined, the next five steps in the management sequence are a logical approach toward their accomplishment.

2. *Plan.* Since planning is such an implicit part of all military training, no discussion of it here appears necessary.

3. *Organize.* The organizational step in military operations usually is provided in tables of organization. The best commanders review their tables and modify them wherever necessary to adapt them to a given situation.

4. *Direct.* The business of directing is that of giving orders. Our military schools place us well ahead of the game in the art of writing and issuing orders.

5. *Supervise.* Supervision is the commander's most important duty. It might, indeed, be the final test of his leadership ability. Successful commanders generally agree that command is about 5% direction and 95% supervision. Supervision is both a command and staff function. It coordinates effort, analyzes results and makes corrections. A supervisor might halt any operation which goes wrong and start the cycle over again. Most successful commanders agree that an order unsupervised might better have remained unissued.

6. *Control.* This final management step analyzes progress and achievement (or lack thereof) for the purpose of making corrections or improvements. Although military effort usually is not measured in dollars and cents, analysis is an important tool of modern military leaders. In the future, economic statistics and evaluation of military operations will become increasingly important as long as the military takes so large a slice of the national budget pie.

7. *Talk with your men.* The mere presence of the commander during times of trial is frequently enough to hold the unit on its objective. But unless close harmony and mutual understanding between the leader and his men have been established his task will evolve into one of constant personal supervision. Contact by presence alone is not enough to effect that feeling of closeness which has existed between all great leaders and their men. It is, in essence, a latent potential, which can be developed only through sincere talks with subordinates —down to the newest recruit.

8. *Keep your men informed.* Letting the entire unit know what is going on within the command helps everyone on the team contribute his best to the team effort. In football it is not enough for a man to know the plays — he also must know the signals. Make certain that in your unit there is no man who "fails to get the word."

There are many useful techniques for getting a unit to disseminate and absorb information promptly. For instance, test the unit for its reaction time to orders, i.e., find out how much time elapses between issuance of orders and compliance. Check individuals to determine whether instructions or information are passed down quickly (such checks also evaluate and emphasize the chain of command). A good system of spreading the word is the best way to prevent surprise; it is invaluable in combat — where a good unit is never surprised.

Management experts in industry stress the need for communication — up, down and sideways. A good leader sees that his outfit always gets the word.

9. *Be fair.* Unless the commander has established a reputation for being scrupulously fair in dealing with his men, he will never attain the stature of the true leader. He will remain a commander only by virtue of the "authority invested" in him — a poor investment, indeed.

Troops will forgive or overlook many shortcomings on the part of the commander, but never unfairness. Nor will they favorably respond to "letter of the law" dispensation of justice. Experienced commanders say that you must temper justice with reason. It is not always just to apply punishment straight across the board. The doctrine of minimum necessary force applies. A light punishment may be more effective for a first offender than a heavy one in the case of a hardened individual. On the other hand, leaders must avoid the danger of being too easy. The leader who is inclined to be easy on his weak or poor men is, by this very softness, unfair to men who are doing their jobs.

You must earn a reputation for fairness by daily examples of impartiality and just dealings. At the same time, use sound judgment when you consider the facts and their application to the individual concerned. Make the punishment fit the crime. The art of leadership lies mainly in knowing when and how to make an exception to fit a certain personality, without essential prejudice to justice, or detriment to the unit.

10. *Back up subordinates.* Your subordinates are your duly constituted agents and as such must be supported publicly, right or wrong. You must promptly and fearlessly take responsibility for their failures and errors. Just as a poor workman blames his tools, the unfair (poor) commander passes the buck. Of course, the leader must step in quickly to prevent errors of injustice by subordinates. If practicable, the error should be corrected in private for obvious reasons.

11. *Be at the right place at the right time.* The fact that you are their leader is established in the eyes of your men not by your rank but by your actions in times of stress. Military men agree that the presence of the commander is often of decisive importance. Nothing reassures the troops more than the Old Man's being around when the going gets rough. When it is dark and cold and wet and dangerous, the leader should be there for that is the time when things begin to fall apart. Conversely, nothing so convinces higher commanders and staffs that everything is under control than seeing the unit commander at the critical spot himself. In larger organizations the commander should judiciously select the most important or critical operation and plan to be there.

12. *Avoid countermanded orders.* Leaders are sometimes confronted with the problem of countermanding orders. Often it is better to let an order stand, even though it may be deficient in minor respects, than to expose your unit to the confusion and lost motion of countermanded orders. Tacticians have long agreed that a poor order vigorously executed is better than a perfect order poorly carried out.

13. *Develop a tradition of success.* It's hard to beat men who believe they can accomplish any task. Start with small jobs and foster the feeling that your unit does everything well. Soon the men catch the spirit of the thing and give substance to their belief. "The Eighth Infantry never fails," they say, and mean it.

14. *Capitalize on a slogan.* There is magic in a name or slogan. Merrill's Marauders received greater recognition and fame than they might otherwise have gained because of a euphonious name and its appeal to the imagination. The "Can Do" motto of the 15th Infantry really inspires its members to greater effort. On the other hand, a name or slogan

with nothing to back it up is a weak crutch. We have only to look at American advertising to see how effective words and slogans can be. The leader who can invent, appropriate or attract a nickname for his team works with an unseen ally.

15. *Capitalize on group approval.* General Taylor has always stressed the basic leadership principle that a "feeling of belonging" is a powerful motivating force. S.L.A. Marshall cites this feeling and the desire for group approbation as powerful motives in encouraging men to fight. Commanders can stimulate this group feeling and identify it with their small units, especially when the soldier first joins a unit.

The leader's best whip is public opinion as expressed by his unit. A constant battle goes on between the leader and the skulkers for the opinion of the unit. The leader must recognize this and take positive steps to crystallize opinion on the side of constructive action. Thus, for example, it should be pointed out that shirkers, skulkers and other goldbricks are in effect stating that, "We are so much more important than the rest—the others should work or fight for us while we take a free ride." Bringing this out in the open soon produces results.

One man is a small and insecure element when confronted by the disapproval of a company, platoon or even a squad. If he learns early that "We do or think thus and so in good old B Company" he probably will wish to fall in line quickly. In its best form, this is the feeling that "the Army takes care of its own." It can help a man out of a tough spot in combat or help him get home or out of a scrape before he picks up a delinquency report for the company.

16. *Encourage competition.* Everyone familiar with the normal competitions for best platoon, best mess and best

soldier knows the value of such rewards in stimulating unit improvement. Americans like to compete. There is much to be said for the publication of simple standings or results of any activity. Automatically those on the bottom are urged to improve their position and those on top stimulated to stay there. Nobody likes to be last.

17. *Don't take no for an answer.* When it comes to looking out for your unit this is an excellent phrase to remember. It is surprising how readily we believe that some needed equipment is unavailable. A gruff supply sergeant seems to discourage us beyond all reason, a private's "the item cannot be had" becomes gospel. We have the best equipped army in the world. Nobody wants our men to be short a single item. Submitted requisitions are poor substitutes for shoes, or "due outs" for gloves in cold weather. So, when it comes to supply, ask for what you need, keep asking, and don't take no for an answer.

18. *Ask for help when you need it.* Americans place a premium on independence and perseverance. Yet there comes a time (possibly an emergency or a matter of great importance) when the best interests of the organization can be served only if the subordinate asks for help. Inexperienced officers are uncertain and hesitant about asking for help, especially if the attitude of a superior discourages such requests. Such superiors display a lack of confidence in the judgment of their assistants, generally to the long-run detriment of the undertaking. The backing of the commander and the total resources of the organization should be available, if necessary, for the asking.

To quote J. Kenneth Salisbury of General Electric: "Relieve the boss of concern for the project assigned. In turn the boss is obligated to support all reasonable requests for assistance." He also says, "Make progress to the limit of your ability, but recognize your limitations and assume complete responsibility for determining when you have reached the limit of your ability to make decisions."

Help your subordinates and ask for help when you need it. But accept nothing less than maximum application of intelligence, initiative and aggressiveness in tackling a job. Requests for help must be timely. There can be no passing of the buck or delays which dump your problems into the boss's lap at the last minute. That help is available can be no excuse for failing to make maximum use of your own resources.

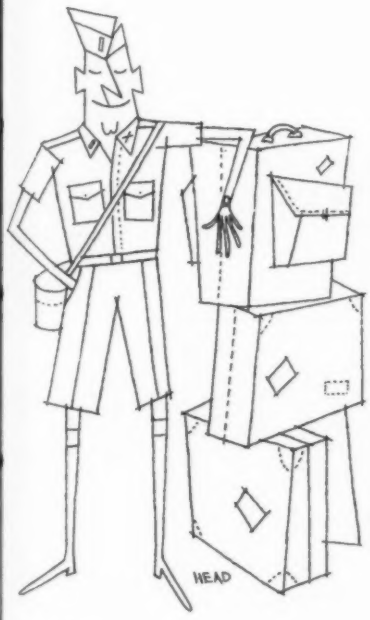
19. *Assume command of a new unit smoothly.* One of the most important steps in the direction of any enterprise is the first one—taking charge. Assumption of command should be smooth. Most good leaders agree that a period of observation is essential for the new commander to analyze the situation. Old orders and methods are continued in effect. Subordinates are encouraged to go about their customary functions. During this period the leader must see and talk to his various subleaders frequently and, preferably, informally. Through these talks he learns about his organization and eval-

nates its personalities. He should visit all elements of the command, talking to the men singly and in groups. These visits have the twofold virtue of informing the leader and letting the men become acquainted with him. Further, on these visits a good commander expresses his views freely, in an informal, friendly manner, on subjects of interest to his men. It is well at this time to demonstrate friendly interest in the individual man. Commanders of American soldiers are fortunate in leading men who are now recognized the world over as fighters of great individuality, initiative, intelligence and courage. Appreciation of these qualities should evoke on the part of the leader proper humility and a sense of real obligation.

There are many other practicable leadership techniques. Each commander develops his own methods, often by trial and error, to suit his needs and personality. In dealing with people there are no pat solutions. Sound judgment always is required. Cultivation of a kindly, objective attitude is of great assistance. Understanding men and appealing to them is the key to success. It may be an oversimplification, but thinking right and living right are the foundation stones.

This article has served a useful purpose if it has made more meaningful, for even a few of the inexperienced many, some applications of the broad general principles of leadership. Perhaps it will assist new commanders in developing their own tricks of the trade.

More than ever before, effective leadership at the basic level is the only way to preserve, sharp and bright, the cutting edge of our army.



TIMES HAVE CHANGED . . .

. . . and so has the Army! That's why smart military men everywhere read the *Quarterly*. It helps them keep abreast of the latest thoughts and developments in doctrine, techniques and equipment. Keep up with your profession by subscribing today to *The Infantry School Quarterly*. Write: Chief, Circulation Section, The Infantry School Quarterly, Book Department, The Infantry School, Fort Benning, Georgia.

THE MULE RETURNS

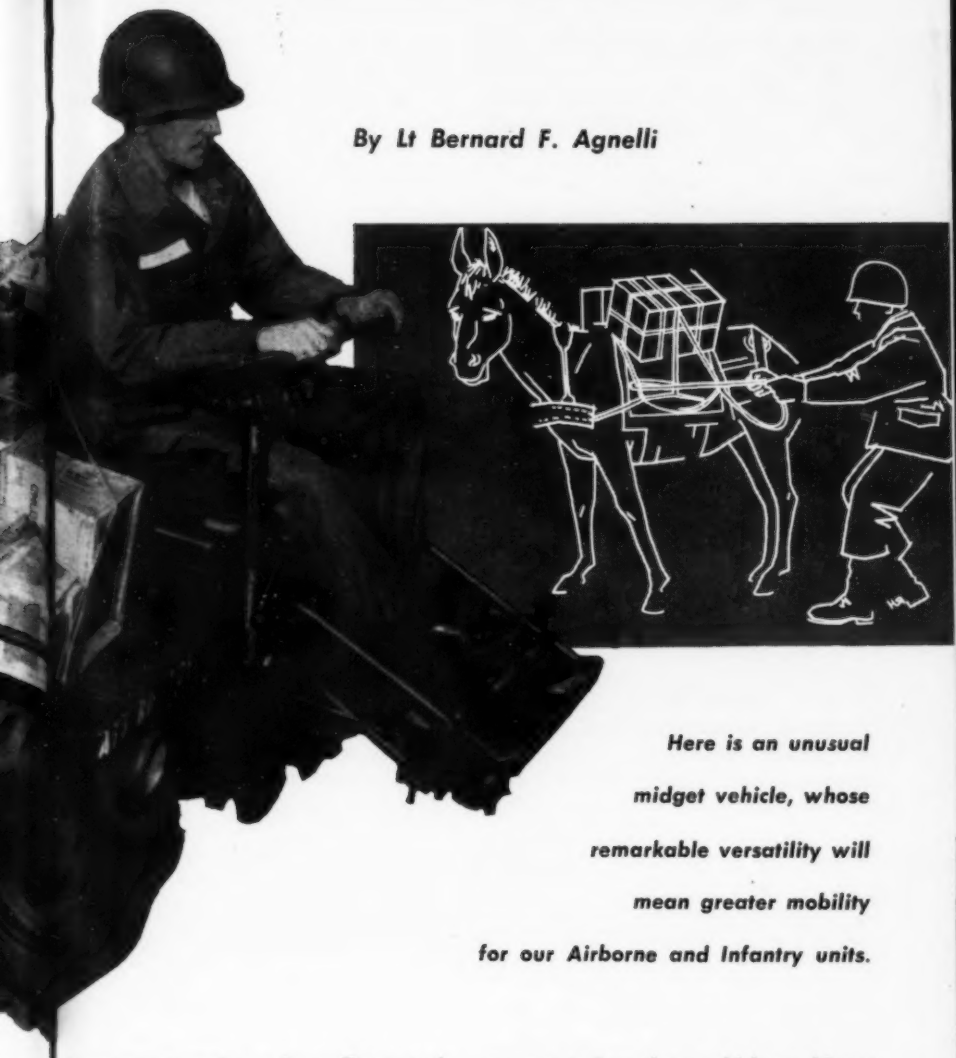
The term "mule" is back in the Army's vocabulary. Infantry units soon may be using *mechanical mules* — atomic-age burden carriers which bear little resemblance to the braying quadruped of the horse-cavalry days.

Today's mule runs on gasoline instead of oats and carries 1000-pound loads over terrain at which the most willing four-legged mule would balk.

Developed as a result of the Army Airborne Conference in February 1951, the rugged little vehicle is going first to an airborne unit. The 101st Airborne Division, just activated at Fort Campbell, Ky., will be equipped with 615 mechanical mules—known more formally as the carrier, light weapons, Infantry, ½-ton, 4x4, XM-274.

The mechanical mule, essentially a flat platform mounted on four rubber-tired wheels, is the answer to an airborne commander's prayer. Its light weight (800 lbs) and compact size make it ideal for

By Lt Bernard F. Agnelli



Here is an unusual midget vehicle, whose remarkable versatility will mean greater mobility for our Airborne and Infantry units.

air movement and paradrop. But use of the mule will not be limited to airborne units. Troop tests soon will be conducted to determine its suitability as a replacement for many of the jeeps and trailers in all types of Infantry units.

Its main job will be to lighten the load which the Infantryman must carry into battle. Mortars, machineguns, ammunition, wire and other combat equipment can be put aboard the mule—which will accompany a GI across fields, through swamps and up slopes which would stop a jeep. With the double-jointed steering column the driver can maneuver the mechanical mule as he sits on top of it, walks behind or in front of it or crawls after it.

This remarkable vehicle is only 100 inches long (without the driver's footrest) and either 46 or 27 inches high, depending on whether the seat and steering column are raised or lowered. The magnesium cargo bed measures 95 by 46 inches. The mule has three forward

The XM-274 can be controlled with one hand by an Infantryman walking or crawling uphill or down.

speeds and reverse with two ranges. Its four-cylinder, air-cooled engine weighs a mere 115 pounds and moves the mule along a highway in high gear at 25.6 miles an hour or across rugged terrain in front of a crawling Infantryman at a snaillike one mile an hour. With a full 8½-gallon tank of gasoline the mule will travel 109 miles on highways or for six hours cross-country with the engine running constantly. Maintenance promises to be relatively easy since the vehicle has no cooling system, no battery, no springs or shock absorbers.

In spite of its miniature appearance the mechanical mule does a giant-size job. Pound for pound it transports heavier cross-country loads than any vehicle in the Infantry regiment. It's the only known vehicle that can carry more than its own weight. To give comparable performance the 2½-ton truck would have to carry 7½ tons; the ¾-ton truck would have to handle 3½ tons and the jeep would have to transport 1½ tons instead of its present ⅜ ton.

Although their low road speed makes them unsuitable for highway convoy operations, fully loaded carriers can be towed forward as trailers or carried in 2½-ton trucks, ¾-ton trucks, 1½-ton trailers or ¾-ton trailers until a unit detrucks and leaves the highway. The mechanical mules will then move forward either under their own power as independent vehicles or as trailers. When used as a trailer, the mechanical mule has 500 pounds more cross-country capacity than the M-100 ¼-ton trailer.

Tests by CONARC Board 3 at Fort Benning during the spring of 1955 left no doubt about the mule's versatility. Its

Four litter patients can be transported over the most rugged terrain.

The silhouette of the mechanical mule is lower than that of the jeep.

performance with 1000-pound loads over mud, sand, swamps, steep slopes, ditches and craters was rated outstanding. Loaded light-weapons carriers went with Infantrymen through swamps and up slopes which stopped the *unloaded* jeep-and-trailer combination used as a comparison vehicle. (Willys Motors, the mule's manufacturer, says it will climb a 72% grade. Even full-tracked vehicles such as the M-48 tank and M-59 armored personnel carrier cannot negotiate such steep slopes.) This maneuverability comes from the mule's 4-wheel steering, 4-wheel drive, its low ground pressure — only 8 pounds per square inch which compares favorably with the 7.1 pounds per square inch of the M-59—and from the fact that the mule has no differentials (all wheels keep turning all the time).

Board 3 found the vehicle suitable for transporting 1000-pound combat loads of the rifle company's rifle and weapons platoons and of the heavy-weapons company's 81mm mortar and machinegun squads. A modified mule carried a 106mm rifle with enough ammunition for most combat situations; the weapon's accuracy compared favorably with that of a 106 mounted on a jeep, its standard carrier.

Communications personnel will really welcome the mechanical mule, which can carry an Infantry battalion's 1450-pound load of wire. A typical commo team took one test vehicle and laid and recovered wire over five miles of trails, dirt roads and corrugated Georgia countryside.

While its primary purpose is to take the load off the Infantryman's back, the mule can carry five to seven men and their equipment over limited distances.

It is easy to ferry the mule across water.

Although designed primarily as a cargo vehicle, the XM-274 could double as a personnel carrier and as a command-reconnaissance vehicle. Five fully equipped riflemen can travel cross-country on the mule and seven riflemen can ride it over unimproved roads for limited distances. As a reconnaissance vehicle it is more maneuverable over difficult terrain than the jeep. It presents a lower silhouette than the jeep and its engine does not interfere with the operation of the AN/PRC 6 and AN/PRC 10 radios.

For evacuating casualties the mule is ideal. A medic can strap two litter patients parallel to the vehicle's long axis or four patients perpendicular to its long axis. He can drive the vehicle to spots inaccessible to the M-170 front-line ambulance. And because the driver doesn't have to be perched on top of it, the XM-274 presents a silhouette about half as tall as an average-size litter bearer.

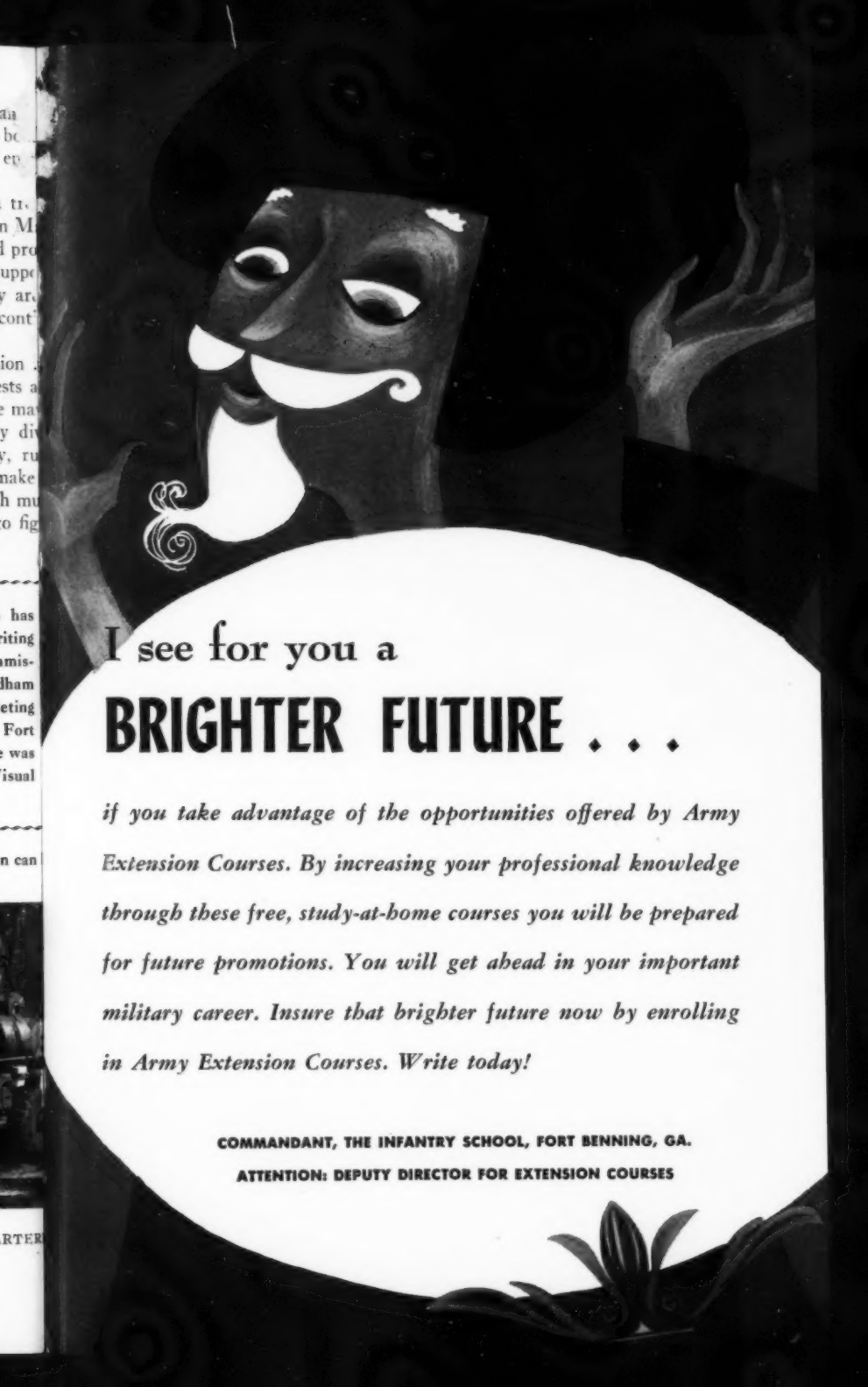
Water obstacles give mule-riding Infantrymen little trouble. Troops can drive it across an aluminum foot bridge; load it on an Infantry support raft; ferry it in M-2 and T-3 assault boats as two- and five-man reconnaissance bo or float it across a stream on four ea 55-gallon drums.

The mule performed well in a tr test by the 82d Airborne Division in M 1955. During Infantry School field pro lems it provided continuous close suppo during the march to the assembly ar night attack, reorganization and cont uation of the attack.

After the 101st Airborne Division re ceives its mechanical mules and tests a completed, the vehicle may replace ma of the jeeps in standard Infantry di sions. Its light weight, flexibility, ru gedness and all-around mobility make an ideal vehicle for an army which mu be prepared to move by air and to fig on any kind of terrain.

Lt Bernard F. Agnelli, who has considerable newspaper and writing experience, received a reserve commission upon graduation from Fordham University in 1954. After completing the basic Infantry officer course at Fort Benning in October of last year he was assigned to the Publications and Visual Aids Office, The Infantry School.

The wire load of the Infantry battalion can carried on this vehicle.


I see for you a
BRIGHTER FUTURE . . .
if you take advantage of the opportunities offered by Army Extension Courses. By increasing your professional knowledge through these free, study-at-home courses you will be prepared for future promotions. You will get ahead in your important military career. Insure that brighter future now by enrolling in Army Extension Courses. Write today!
COMMANDANT, THE INFANTRY SCHOOL, FORT BENNING, GA.
ATTENTION: DEPUTY DIRECTOR FOR EXTENSION COURSES

ATOMIC

Let's take a look at some of

the planning and coordination we will need

if we ever use atomic weapons in an attack.

FIRE SUPPORT

All over the world military planners are working before a background dominated by atomic weapons. For the past 10 years America has heard many divergent views on the place of atomic weapons in the framework of our own national defense. These views vary from the massive retaliation-strategic air power concept to the feeling that mass-destruction weapons will fall into the not-used category of gas in World War II. But no one has come up with the answer to the most important question being asked in defense circles today: "Which course will atomic warfare follow?"

For the Army, however, this problem has been solved. The Chief of Staff has stated that the Army must be prepared not only to use nuclear weapons effectively against the enemy in all situations but also to have the enemy use them against us.

The Army's mission is unchanged. It is still to defeat an aggressor in land combat—and to gain control of the land and its people. While two-sided atomic warfare would not alter fundamental operational principles, it most certainly would cause an almost revolutionary change in their application.

For example, it points up a much greater dependence of maneuver on firepower, especially at the lower unit levels. In effect, atomic weapons would become the corps commander's primary fire-support means.

In addition, we must apply the principle of mass cautiously. According to FM 100-5, mass is essentially a combination of manpower and firepower. But we must not make the mistake of equating mass to numbers of troops and conventional weapons alone. The massing of troops and artillery for an attack as done in World War II and Korea could be as disastrous on the atomic battlefield as the charge of a Macedonian phalanx against a modern machinegun position.

Much has been written recently about the effect of atomic weapons on our current tactics and organizations. The trend of thought at this time is easy to discern. While ground combat will always consist of fire and maneuver, the tremendous firepower of atomic weapons calls for maximum flexibility in all units. The keynote is dispersion of our forces to deprive the enemy of worthwhile atomic targets. This dispersion leads to a need for mobility which enables troops to mass

By Col Theodore C. Mataxis

quickly at a critical point for an attack—and then disperse rapidly once the objective is seized and before the enemy can react with an atomic weapon. This wide dispersion and rapid movement lead in turn to a requirement for superior communications to maintain control of widely dispersed and constantly moving units.

Field exercises such as Follow Me, Sagebrush and others have tested new ideas and battle organizations to determine an optimum formation and the most effective tactics for the atomic battlefield.

We must continue to theorize, study and field-test new ideas and concepts to insure that we keep the Army up to date with every new technological development. That the Germans understood this need between World War I and World War II was reflected in their counterpart of our Field Service Regulations:

"War undergoes a constant evolution. New arms give ever new forms to combat. To foresee this technical evolution before it occurs, to judge well the influence of these new arms on battle, to employ them before others, is an essential condition for success."

The danger of not keeping abreast of the evolution in technology, new weapons and tactics is vividly portrayed by the fate of the French and British Armies in France in 1940. After World War I, the victorious French and British rested on their laurels. Their general staffs visualized that World War II would follow the pattern of World War I—a German offensive on a wide front. They were convinced, of course, that the Maginot Line could stop any German attack.

At the same time, the Germans were developing and testing organizations based on tanks and aircraft working in close conjunction. They finally evolved the blitzkrieg — mass tank attacks, supported by dive bombers, smashing through the enemy defensive zone on a narrow front toward an objective deep in the rear. Thus the Germans built their military power around the two new technological advances of World War I, the tank and the airplane. The German attack in the spring of 1940 on a narrow front completely surprised the French and British and resulted in the capitulation of France and the evacuation of the British Army through Dunkirk. We must insure that we do not make the mistake of training for the next war with the last war's doctrine. If World War III ever comes, we must be ready to fight with the greatest technological advance of World War II—atomic weapons.

During World War II, even with complete surprise, several days were required for a breakthrough with massed conventional weapons. Today, the sudden saturation of an enemy area by atomic firepower coordinated with a ground attack will allow a breakthrough without massing a large concentration of artillery and troops. Troops can be massed at the last instant before the attack — by concentrating in time rather than space.

As with other weapons, the payoff from atomic weapons is greatest when the initial effect upon the enemy is exploited vigorously. However, we do not expect to defeat the enemy by atomic firepower alone. To break through the crust and maintain neutralization of an enemy attacked with an atomic weapon, conventional fire-support means must be integrated with the atomic-fire-support plan and the plan of maneuver.

For the Infantry, then, some questions about these principles come to mind. "Fine, but how will this affect me if I have to fight my unit tomorrow—supported by tactical atomic weapons?" "How will they be made available to support attacking Infantrymen?" "What is the background of planning and requests before we actually receive atomic fire on the enemy to our front?"

To answer these questions and to best

illustrate the detailed planning and coordination necessary when using tactical atomic weapons in support of an attacking field army, let us visualize the following situation.

The aggressor attack on NATO forces during the spring was finally stopped just west of the Rhine River. NATO forces now are prepared to launch a counteroffensive supported by extensive use of tactical atomic weapons. After heavy losses during their unsuccessful attack west of the Rhine River, aggressor forces halted, regrouped and reverted to the defensive, preparing to meet the coming NATO offensive.

On 3 May the III Corps commander received a letter of instruction from Seventh Army outlining the III Corps mission during the coming counteroffensive. Extracts from the letter follow:

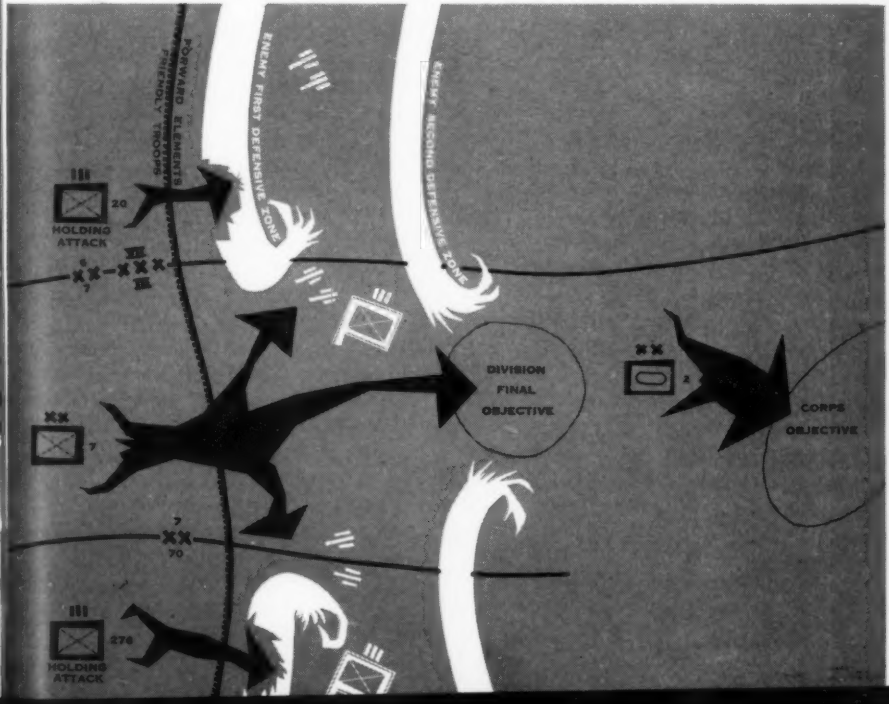
Known Aggressor dispositions as of 1 May are shown on inclosed map. Theater intelligence says that the enemy tactical atomic capability is severely limited by a stockpile reduced because of the April offensive and other strategic demands. It is estimated that the enemy will, however, employ atomic weapons against targets which threaten a breakthrough of his extensive battle position.

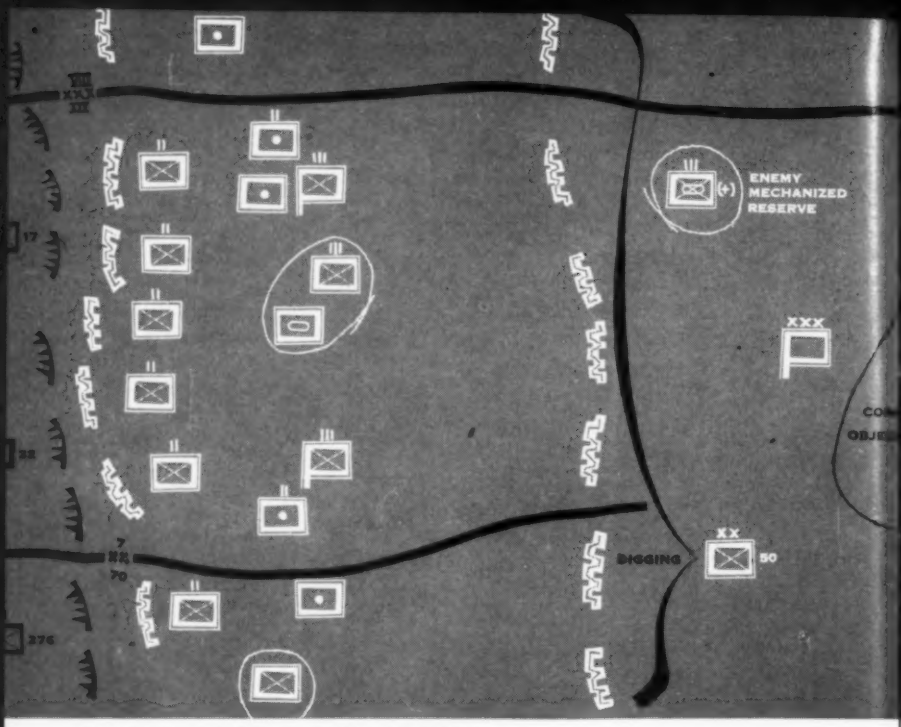
III Corps will attack 7 May to penetrate enemy defensive positions, seize the high ground 20 miles east of the enemy second defensive line and prepare to continue the attack to the east on order.

Atomic weapons, for planning purposes only: 20 weapons available 2 KT thru 75 KT; all delivery means available. Specific attachments and allocations later.

After receipt of the Seventh Army letter of instruction the corps staff was called together at 031900 May for a planning conference. The corps commander issued his concept of attack (Map A).

Map A. Corps commander's concept of attack.





Map B. Enemy dispositions.

He directed that the corps attack initially with two Infantry divisions abreast. The 7th Division in the north to make the main attack to breach the first and second enemy defensive positions. After penetration of the second enemy line the 2d Armored Division to pass through and seize the corps objective. For the initial breach of the enemy position he directed that the bulk of the allocated atomic weapons be massed on a narrow front. He added that additional plans should be made to utilize on-call atomic fires to support the breakthrough of the rear positions.

After receiving the corps commander's concept, the corps G3 called his section together and briefed it on the situation. He outlined the factors which he considered of utmost importance in selecting general target areas for atomic weapons to support the corps attack (Map B).

"First," he said, "we must consider the influence that destruction or neutralization of the target will have on our mission. Secondly, we must consider all the intelligence we have available about the target that will assist the target analyst to evaluate properly the weapon and weapons system which will finally be selected. The initial planning conference will take place immediately."

During the initial planning conference the following general target areas were selected for scheduled fires; priorities were assigned (Map C). The first defensive line was selected as a general target area (target area Alfa). This is

in line with the corps commander's concept of a breakthrough, supported by massed atomic firepower, on a narrow front. The fires planned here will insure the 7th Division's rapid breakthrough of the first enemy defensive line.

Next, additional attacks were planned on local reserves, command posts and fire-support elements supporting the front-line holding garrisons (target area Bravo). Atomic weapons in this area would assist materially the rapid passage of attacking troops through the first defensive line by neutralizing the local reserves, fire-support and command installations in this area.

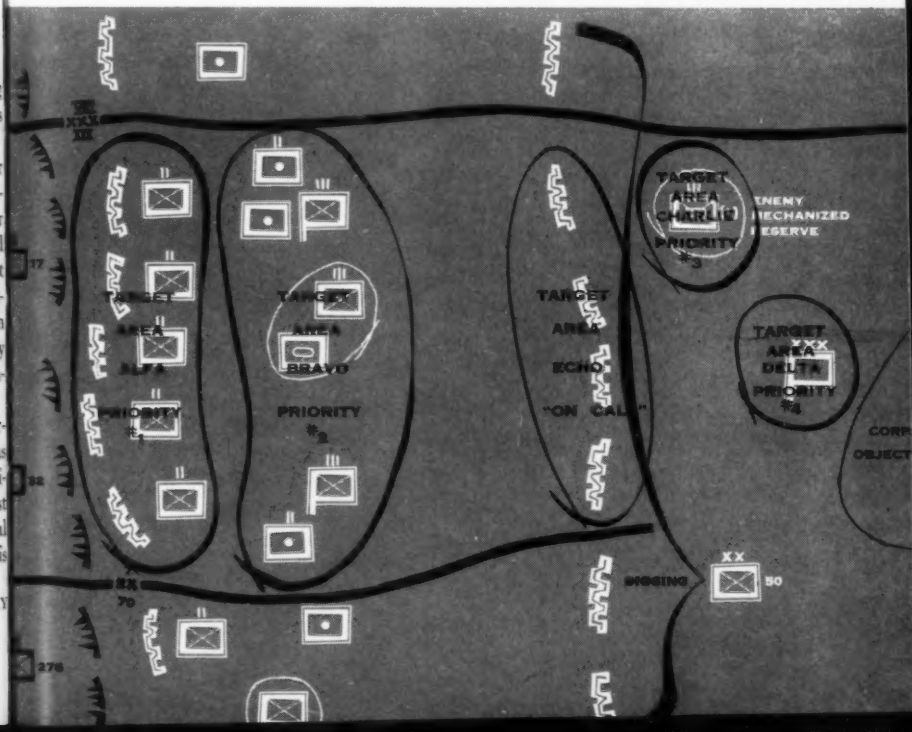
Target area Charlie included the located enemy reserves which could interfere with the breakthrough. This mechanized regiment, held in mobile reserve, is a threat to the successful accomplishment of the corps mission. The enemy could employ it in a blocking role along the second defensive line or use it as the nucleus of a counterattack force.

In addition, an attack was planned on the corps command post, target area Delta, to disrupt communications and command during the most critical phase of the attack, the breaching of the first defensive zone. In addition to knocking out the corps command post, a bonus effect would be obtained from damaging other installations normally located in the vicinity of a corps command post.

Priorities for scheduled targets were arranged in the order in which they would contribute to the accomplishment of the corps mission. Target areas Alfa and Bravo were given first and second priorities as they cover the hard crust of the enemy defenses through which the main attack must penetrate.

Third priority was given to target area Charlie, the enemy mechanized reserve which posed a major threat to a speedy breakthrough of the first two defensive zones unless neutralized.

Map C. General target-area selection.



Lowest priority for a scheduled strike was given to the enemy corps command post, target area Delta.

Target area Echo, on the second defensive line, was selected as an on-call atomic target because the personnel in this target area were too dispersed to make it a remunerative atomic target at the time. By listing this as an on-call atomic target, data would be calculated in advance and the time to deliver an atomic strike would be reduced. In addition, many other key areas in which possible employment of an atomic weapon can be foreseen will be selected as on-call target areas to reduce to a minimum the time needed for the delivery of an atomic weapon.

Following approval of the planning-conference recommendations the G3 made arrangements to issue the corps operations order. He instructed an assistant G3, the corps special-weapons officer, to go to the 7th Infantry Division and assist in preparing a detailed atomic-fire-support plan for the division attack. Because of the plan for massed atomic weapons to support this attack, utmost importance was placed on the proper selection of available delivery means.

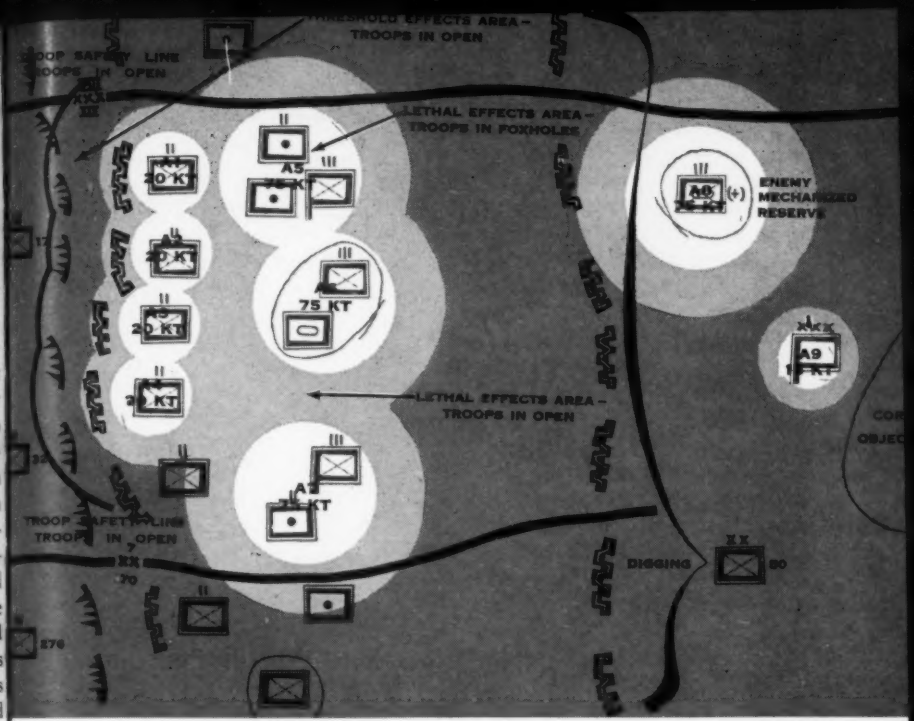
The corps G3 directed that the attacks on targets to the rear of the main battle position be simultaneous with the mass strike on the first defensive line. This would cause maximum disorganization and confusion through the depth of the enemy position and paralyze enemy reactions during the breakthrough of the first defensive line. To assure maximum flexibility and utilization of available delivery means to support this plan the G3 instructed the special weapons officer to coordinate personally with the 7th Division G3 on the type of delivery means for all preplanned attacks. "I want to assure," he said, "that we are utilizing properly the delivery means allocated to us. Considering the number of simultaneous preplanned strikes we are scheduling, we will have to make optimum use of all means."

By 040800 May at the 7th Division command post, the staff was planning for the impending offensive. Based on the corps warning order, the division commander issued the following planning guidance to his staff.

"Supported by atomic weapons we attack 7 May to break through the first and second enemy defensive lines in our zone. We will attack initially with two regiments abreast and rupture the enemy's first defensive line. We will then seize positions to protect the division flanks and to further the attack eastward to breach the second enemy defensive line in the division sector. We will plan for the regiment initially in reserve to seize an objective breaching the second defensive line. Following our division's breakthrough of the second line, corps plans to exploit with the 2d Armored Division."

The corps special-weapons officer arrived at the division command post with the information that, for planning purposes, the 7th Division had tentatively been allocated a combination of any nine atomic weapons from 2 through 75 KT. He also told the division G3 that he had been instructed to coordinate the selection of delivery means. "The corps commander," he said, "is especially interested in the close coordination of delivery means to deliver all available planned fires in one massive blow to maximize the effect gained from surprise."

At this time the regimental commanders and their staffs arrived at the division command post for the planning conference on the supporting atomic fires to be requested. The division G3 outlined the plan of maneuver. "Now," he said, "as you know, our most important task is to come up with definite recommendations on how atomic weapons can best support



Note: Although not shown on the map, the threshold-effects area for troops in foxholes would be calculated by the G3 to insure that friendly front-line emplacements were safe.

Map D. Selection of weapon yield.

our attack. What we need at this meeting is an estimate from the commanders of the attacking regiments on exactly what they want neutralized by atomic firepower to best support their attack. After close coordination with our weapons specialist we will select tentative ground zeros, estimate damage to enemy troops and firm up safety requirements for our own troops. Once this information is available, you commanders will be able to start planning the integration of your nonatomic supporting weapons with the damage effects of the atomic weapons." (Map D.)

The division commander approved the

TARGET	WEAPON YIELD	DESCRIPTION OF TARGET
A1, A2, A3, A4	20 KT	Dug-in rifle units and battalion supporting weapons.
A5, A6, A7	75 KT	Local Infantry and armored reserves, artillery and command posts.
A8	75 KT	Enemy mechanized regiment in mobile reserve.
A9	15 KT	Enemy corps headquarters.

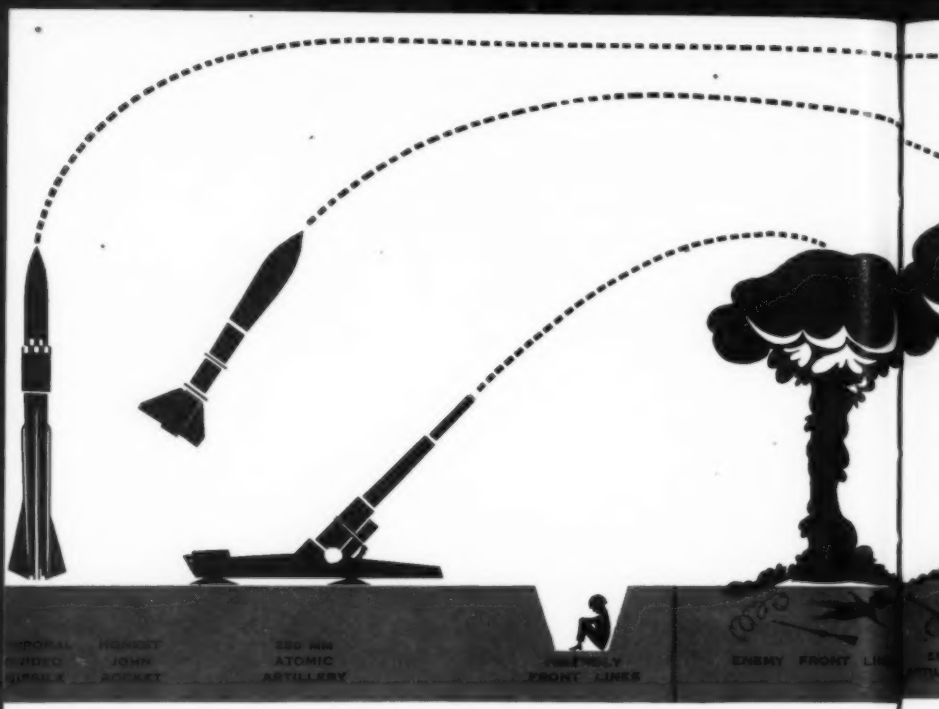


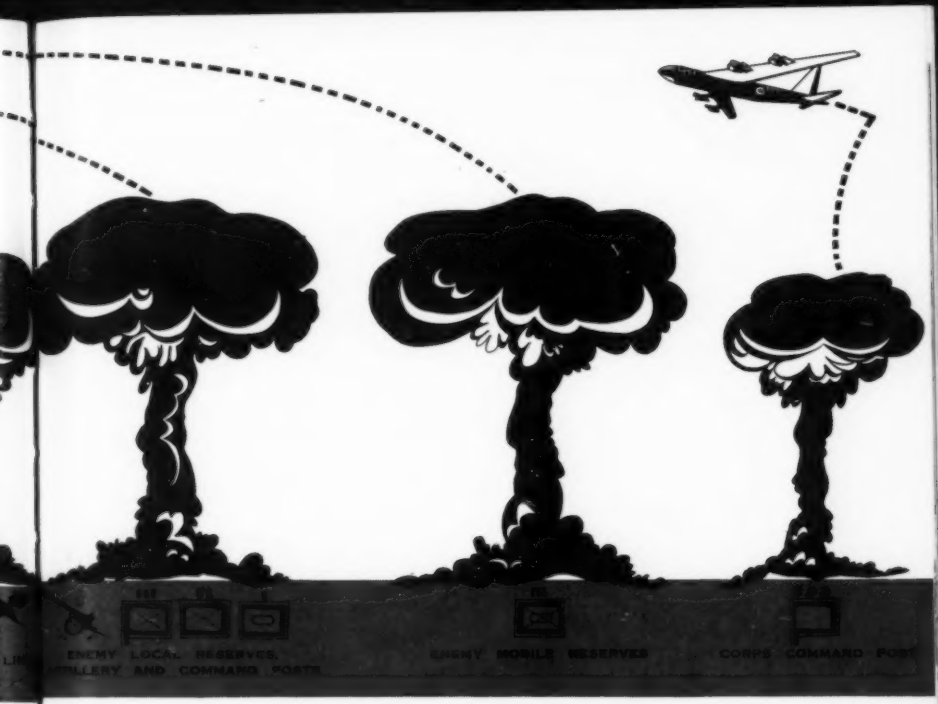
Figure 1. Selection of delivery means.

selection of weapons made at the planning conference. He then gave the following instructions for the use of nonatomic fires to support the attack.

"Remember," he said, "the need for secrecy—we must assure that we maintain a normal pattern of activity and fires prior to A-hour. [Time scheduled for atomic strike.]

"Now for the integration of nonatomic fires with our atomic-fire effects. We must arrange for the maximum use of all of our nonatomic weapons to support a rapid breakthrough of the crust of enemy troops not affected by the atomic attack. We must plan to mass fires on enemy positions between our front-line troops and the area of severe damage to insure neutralization of the enemy in this area during the attack. Then we must plan for fires on all routes into the area from the rear to prevent effective reinforcement of the blasted area. We also must plan for harassing fires on located reserve areas and command posts to disrupt and delay reorganization.

"As you know, on-call atomic fires have been planned to support the attack on the second defensive line. The keynote to this whole attack is speed. We must try to keep the enemy on the run so that he won't be able to reorganize and counterattack before we seize our assigned objectives. As soon as our objectives are seized, spread out, dig in and be prepared for an enemy counterattack supported by atomic weapons. Corps is prepared to furnish reinforcement by battalion, to replace battalions lost during the attack to enemy atomic weapons. Helicopter units have been made available to move units forward rapidly after such a loss. Upon relief by a fresh battalion from the corps reserve, battalions rendered in-



DELIVERY MEANS	YIELD	RANGE	MISCELLANEOUS DATA
Atomic artillery	2-20 KT	30,000 yards	Low circular error probable (CEP); best for use in close proximity to friendly troops.
Rocket	10-100 KT	10-25 miles	Greater variety of yields available; range relatively limited.
Guided missile	10 KT—5 MT	20-150 miles	Longest-range nuclear weapon in Army arsenal.
Aircraft	2 KT—5 MT	Depends on aircraft	Greatest flexibility in yield and range. Must be used with caution near own troops because of relatively large CEP.

effective because of heavy losses will be attached to division headquarters for rehabilitation."

After the planning conference, the corps special-weapons officer and the division G3 returned to the G3's trailer to discuss delivery means (Figure 1). First, they considered the atomic weapons to be used against the front-line enemy troops, targets A1 through A4.

"It seems to me," said the G3, "that the major factors to be considered here are safety of our troops and cutting to a minimum the buffer distance between

our troops and the area of severe damage to the enemy."

"That's true," replied the special-weapons officer, "and both these requirements are best met by a weapons delivery system with a low CEP [Circular Error Probable]. The accuracy of the 280mm artillery gun makes it, without a doubt, our best weapon for these targets."

Next to be considered were the local reserves and targets immediately to the rear of the enemy front-line battalions—targets A5 through A7.

"On these targets we'll have to rule out the use of the 280mm gun because of the greater yield required," said the G3. "That leaves us either the Honest John rocket or the Corporal guided missile. You know, we can't schedule the Air Force for strikes this close to these other planned atomic bursts because of the danger to the aircraft from the other atomic explosions."

"That's true," said the special-weapons officer, "and in line with making maximum use of all of our delivery means this is where we should utilize the Honest John. Its relatively short range in comparison with the Corporal makes it ideal for these targets.

"Now for the mobile reserves which could interfere with the attack. Here our major consideration is distance of the target beyond our front lines. Because of range limitations the only suitable army delivery means is the Corporal.

"Finally, our last target, the corps command post. Here I believe we should recommend using air delivery. This will allow holding an additional guided missile ready for an on-call target as needed.

"Well, this winds up our preliminary selection of delivery means," said the corps special-weapons officer. "Do you have any questions or do you desire additional coordination before I return to corps with this information?"

"That covers things pretty well. The only additional point I have to discuss is the time of attack," said the G3. "We recommend that the atomic attack closely precede or follow BMNT. The concealment offered by darkness before the attack is necessary to gain surprise. The attack should be launched when the attacking troops can move rapidly from the area to exploit the destruction and disorganization caused by the atomic attack."

"That seems reasonable to me," said the special-weapons officer. "I'm sure that this will be accepted at corps. Use this for your initial planning and, in case we have to change the time for any reason, I'll let you know as soon as possible." He then returned to corps headquarters where the information he received was coordinated with other plans and finally included in the corps atomic-fire-support annex.

As can be seen from this example, a numerically inferior force properly supported by tactical atomic weapons can attack a much larger force. With nonatomic firepower alone, the 7th Division would have been unable to attack the numerically superior enemy entrenched to its front. However, in this case the relative combat power of the opposing forces was not based solely on numerical strength. Plans were made to destroy and disorganize the opposing enemy by using atomic weapons to "cut him down to size."

In the above example the mass atomic strike before the attack should neutralize the enemy permitting a rapid breakthrough and seizure of the second defensive zone before he can react effectively. The atomic strikes on the main enemy defense zone, local reserves and artillery, supported by massed nonatomic fires on the hard crust entrenched immediately in front of our troops, should allow for a rapid advance on an axis toward the assigned objectives on the

division flanks. This would be followed by a rapid seizure of the second line by the reserve regiment supported by on-call atomic weapons.

Once objectives are taken we must be prepared for enemy counterattacks—also supported by atomic weapons. It is therefore imperative that, as soon as the objectives are seized, commanders disperse their troops to avoid presenting a lucrative atomic target to the enemy. Units must dig in as rapidly as possible. However, in order to counterattack, the enemy also must mass his troops, thus presenting a remunerative target to a friendly on-call atomic weapon.

You have read about the various means available today to deliver the tactical atomic weapon in support of your unit. To insure that we will be ready if and when a nuclear war comes, each of us must prepare himself and his command to utilize properly all the means at our disposal, including tactical atomic weapons, to insure success on the battlefield of the future.

COL THEODORE C. MATAXIS gave readers a look at how Infantry might employ nuclear weapons in the defense in the July issue of *The Infantry School Quarterly*. This article is a companion piece on atomic fire support. Col Mataxis' knowledge of nuclear weapons and atomic tactics stems from extensive study. He has completed the special weapons course at Fort Leavenworth, the guided missiles course at Fort Bliss and witnessed the atomic tests conducted in Nevada. During World War II, he commanded the 2d Battalion, 276th Infantry in Europe. In 1950 he attended the Indian Defense Services Staff College and during 1951 served as a UN Military observer in Kashmir. Col Mataxis commanded the 17th Infantry Regiment in Korea. He was assigned to The Infantry School's Tactical Department from 1953 until July of this year when he was named Chief, Publications and Visual Aids Office.

WHAT DO YOU KNOW . . .

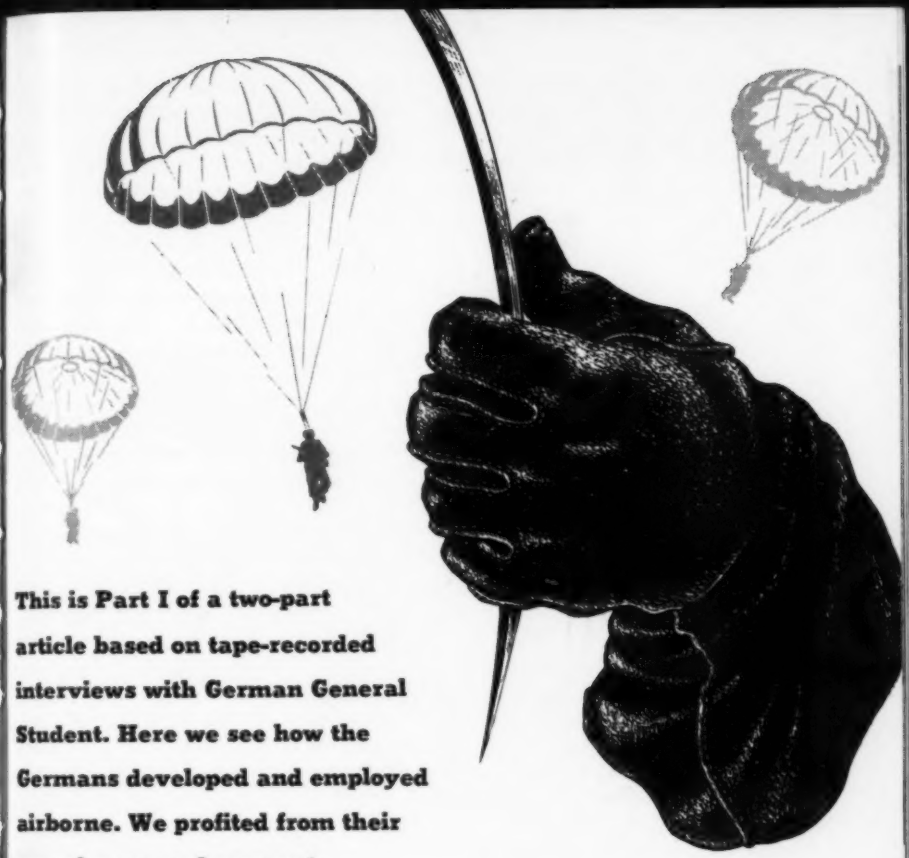
. . . about the Infantry School's Book Department? Do you know, for instance, that the Book Department carries a complete line of military books? Do you know that if your request is not in stock the Book Department can get it for you — in a hurry? And best of all, do you know that it's standard policy for the Book Department to sell all military publications at a 10% discount?

You can make the Book Department your headquarters for books, instructional problems, special texts and military literature of all types. You'll find it a convenient and inexpensive way of filling your reading needs.

WRITE: THE BOOK DEPT., THE INFANTRY SCHOOL, FORT BENNING, GA.

SWORD OF SILK

Today the United States Army is the most airborne-minded ground fighting force in the world. This was not always true. In the spring of 1940 airborne warfare to the U. S. Army was an untried theory, at best a weak vision. Hitler, on the other hand, had been sharpening the teeth of two airborne divisions under the leadership of a paratrooper major general named Kurt Student. What happened to Student's powerful fighting force, the cream of the German Luftwaffe? Why was Hitler shocked at Germany's most spectacular and strategic airborne victory? What was the connection between these first



This is Part I of a two-part article based on tape-recorded interviews with German General Student. Here we see how the Germans developed and employed airborne. We profited from their experiences and soon outstripped them.

By CAPT BOYD T. BASHORE

German paratroopers and the greatest airborne fighting force in history, the First Allied Airborne Army? The answers to these questions tell the story of the birth of strategic airborne warfare.

Sunday, 17 September 1944. Through the windows of the comfortable manor which served both as his command post and billet, Generaloberst Kurt Student could see the Dutch countryside stretching flat to the horizon. In the warm morning sunlight the green trees and farm fields south of the town of Vught lay peaceful and still. Here in the country the war seemed far away, except for the streams of allied fighter-bombers that had been passing overhead. And passing, it seemed, with increasing frequency.

General Student had returned on the day before to his headquarters. He had just finished a prolonged inspection on his front lines. Now he sat at his desk and halfheartedly started on the perpetual pile of tiresome paperwork which always accumulated when he was away. Absently his fingers toyed with the black and silver Knight's Cross, the highest decoration of Germany, which hung loosely about the throat of his blue paratrooper's tunic. Student commanded

the First Parachute Army which was stretched from Maastricht to the North Sea. Field Marshal Montgomery had driven Student's army steadily, although not spectacularly, back into Belgium and the Netherlands. Today's intelligence report warned of long columns of British armored vehicles massing south of the Maas-Scheld canal.

Student stood up, stretched slowly and walked to the huge window which opened on a balcony. Pulling wide the glass doors he stood in the summer breeze and scanned the clear blue sky for aircraft. Now the American and RAF bombers which recently had passed overhead were hitting their targets on the horizon. From the distance Student could hear the muffled explosions of the bombs and the far-away chatter of antiaircraft guns. Reluctantly the general returned to his desk and the work at hand.

Soon it was noon. Although Student was deeply engrossed in his work, he became conscious of an almost imperceptible rumble from the sky. He glanced up, took off his horn-rimmed reading glasses and cocked his ear toward the open window. Starting at first as a distant murmur, the sound intensified steadily until it dominated the air. That was the ominous growl of hundreds of aircraft engines!

Student rushed to the balcony. Wherever he looked the sky was thick with troop-carrier aircraft, camouflaged green and dirty brown, flying in rigid formation. Gliders were towed behind many of the transports. Thundering only a few hundred feet above the house the formation seemed endless. Stretching to the horizon the formations replaced each other, flight after flight. The sky was filled. High above, nearly out of sight, fighters flew top cover. It was the greatest air armada that General Student had ever seen.

In the courtyard below the balcony the grey-green uniforms of the German Army mingled with the blue of the Luftwaffe. Frantic, ineffective firing from the staff started as the planes passed overhead. After a minute Colonel Reinhardt, chief of staff, joined Student on the balcony. The sharp brown eyes of the general were fixed on the sky.

"Look at that, Reinhardt," cried Student as he watched the planes fly overhead. "There is your airborne army! The Fuehrer didn't believe me! Ach, if only I had ever had such an airborne force at my command!" Then he turned and ran to the flat roof of the house from which he could observe better this enormous spectacle.

Student's professional admiration for this airborne operation distracted him for a few minutes from the threat that it presented to his troops. The First Allied Airborne Army and, more specifically, in the vicinity of his command post, the paratroopers of the crack American 101st "Screaming Eagle" Airborne Division commanded by Maj Gen Maxwell D. Taylor, were jumping right into his hip pocket. Student could think only of the decline of Germany's airborne might, of days past still ringing with the empty echo of Hitler's shrill voice screaming "Student, your paratroop operations on Crete have proved that the day of airborne is dead. Finished! Don't tell me that the Americans are activating airborne divisions. I don't believe it. It is simply not true. Airborne is dead. Now, go away."

For Generaloberst Kurt Student to be an on-the-spot victim of Operation *Market Garden*, the largest airborne operation ever undertaken, was an ironical climax to his military career. Student was recognized as one of the world's earliest exponents of mass airborne tactics. For that reason he could not help harboring a detached feeling of pride mixed with awe over what he saw from

the rooftop. Here was a modern Frankenstein suddenly perceiving the fury and destruction of his own monster turned against him. For Kurt Student was the attending physician when the infant Airborne was born.

Student thought back to the first time that Hitler had talked personally to him about airborne. It was 27 October 1939 during the "Sitzkrieg," when the armies of Europe faced each other behind the Siegfried and Maginot Lines. It was obvious to Student that Hitler had studied in detail the reports about this new airborne weapon that Student had been developing. Student was amazed at the insight Hitler showed concerning the capabilities and limitations of the German paratroopers, especially since at that time they were still in the experimental stages.

As Hitler paced back and forth across the floor he said, "Student, in past wars new and secret weapons cleverly operated have gained strategic success. For this reason our first strategic airborne operation will have to be carried out with surprise and audacity. In the invasion of Poland I did not want to use your paratroopers because there were no adequate targets. I did not want to expose the secret of the German airborne, so I let the Wehrmacht take it alone. Your paratroopers are so valuable that I will put them into operation only if it is worth while. Then they are sure to be a success." Hitler paused and smiled. "In the coming Western Campaign, Student, your paratroopers will definitely go into operation. It will be a great thing."

Hitler and Student then discussed the Dyle Line, a fortification chain of 200 bunkers in northern Belgium. In World War I this defensive line protected the Belgian Army during its retreat into France. "The means for such protection must be eliminated this time," Hitler stated. "Under your command, Student, the 7th Parachute and 22d Airborne In-

Generaloberst Kurt Student.

fantry Divisions will initially seize a major airhead on this Dyle Line.

"Your second mission," continued Hitler, "will be to land near Maastricht on Fort Eben Emael with specially trained engineers and on the Albert Canal bridges with air Infantry. The capture of Fort Eben Emael by us will prevent a flanking action against our crossings of the Maas. Eben Emael is one of the strongest positions that the Belgians have. Their military experts consider it impregnable — against conventional ground attack. Timed simultaneously with landings on Eben Emael your paratroopers will take the bridges over the Albert Canal and prevent their destruction. The accomplishment of these two missions will enable von Reichenau, after seizing his own crossings over the Maas, to link up with the paratroopers and then continue the drive into Belgium with his panzers."

Searching for a reaction, Hitler watched Student closely. For a full min-

ute Student remained silent, deep in thought. Finally Hitler demanded impatiently, "Well, what do you think?"

Student weighed his words carefully. When he replied, he spoke slowly. "The plan for the Dyle Line can be done. The Eben Emael plan is too adventurous."

Momentarily Hitler was taken aback by this frank reply and impatiently started to mutter about carrying out his orders. Then Hitler relaxed. Condescendingly he said, "Oh well, Student, this is all too sudden. You have not had time to evaluate the plan properly. We will wait until tomorrow to hear your final opinion. Go home and sleep on it. See me in the morning."

Later as Student lay in the darkness of his bedroom he weighed the advantages and disadvantages of each of the plans. Their audacity appealed to him, especially Eben Emael. He certainly had no objection to the plans from that angle. Since assuming command of the paratroopers in July 1938 he had fought a constant battle with the ultraconservative members of both the Wehrmacht and Lutfwaffe concerning the theory of airborne. Student had envisioned airborne troops as a strategic force, lightning-quick divisions or corps securing the advance of a field army, linking up with armored units driving in from the ground. Most of the old-school Wehrmacht leaders rose in protest. To them airborne meant saboteurs, agents and spies—at most small guerilla forces. Paratroopers should be used tactically only in small units such as squads and platoons, as individual fighters. This theory Student strongly opposed. Significantly, Student for airborne, and his counterpart in armor, Hans Guderian, later were able to justify and vindicate their theories before the high command and start a revolution in the art of warfare.

So in principle Student certainly had no quarrel with Hitler's airborne plans. It was obvious that the Fuehrer did not intend to fritter away his valuable airborne forces in minor guerilla operations. Hitler seemed to appreciate the problems involved in the plan. If anything the plans appeared to Student to be too ambitious for Student's two airborne divisions. There in the night he weighed the pros and cons of the plans. Finally he reached a decision.

The next morning Student reported to Hitler. Student felt that the airhead on the Dyle Line was within the capabilities of the airborne divisions. The plan for Eben Emael might barely work; certainly it was a calculated risk. Hitler was pleased and smiled. "Good!" he said. "Carry on with your preparations, Student."

Before the planning had progressed very far the Dyle Line airhead was canceled in favor of an equally ambitious operation on the Netherlands. Student still considers the planned Dyle Line jump an excellent example of how airborne forces could be used against static defenses.

The Holland operation called for Student's two airborne divisions to capture the Moordijk bridges, the city of Rotterdam and its airport, and the Dutch capital, The Hague, with its airfields. The Fort Eben Emael operation remained unchanged. Eben Emael was given two singular honors: not only would it be the kickoff for the entire war in the West, but it would herald the Holland jump, the first major airborne operation in the history of warfare.

Friction immediately developed between General von Reichenau, the German Sixth Army Commander, and General Student concerning the exact time to launch the attack on Eben Emael. Von Reichenau naturally wanted to jump off with his ground troops under the cover of darkness. Student knew that his glider

and parachute troops, and more specifically the troop-carrier-aircraft crews of the Luftwaffe, were not sufficiently trained for night operations. Committing his untried forces in darkness could easily cause the failure of a plan which, to say the least, was fraught with many calculated risks. Time wore on and the two generals were unable to come to an agreement. Each clung stubbornly to his own plan.

On a Sunday afternoon General Student unexpectedly received a call from Hitler. Impatient that his limited privacy should be disturbed on a holiday, Student reported to the Fuehrer without enthusiasm. He wondered what the meeting could be about. There at Hitler's headquarters, to Student's surprise, he was confronted by von Reichenau, who finally had gone straight to the Fuehrer to settle this business of the jump-off time. In the presence of Hitler, who for once did most of the listening and acted as moderator, Student and Reichenau, their tempers tense, bargained for every minute. Finally, on the condition that Student shoulder all the responsibility if the operation should fail because of the dawn timing, Hitler backed his airborne commander.

On 10 May 1940 Fort Eben Emael was attacked. When 79 specially trained German airborne engineers, clumsily weighted down with equipment, staged their glider take-off in the darkness near Cologne the era of airborne warfare had begun. An orange line of bonfires flickered across the darkened German countryside pointing the way for the aircraft into Belgium. Near Aachen the gliders were cut loose and they glided silently through the air toward the fort. At precisely 0505, just as dawn provided sufficient light for landing, the landing skids of the gliders dug into Belgian soil on top of the fort. Eben Emael's antiaircraft guns fired hardly one effective shot, so complete was the surprise of the gliders.

A combat-experienced sergeant instructs a new paratrooper, 1942.

Eben Emael was defended by 1200 Belgian soldiers. They had been recalled from passes and leaves at 2235 the night before in anticipation of some sort of attack. All battle stations were manned at 0100 hours that morning. At 0340 German planes bombed the fort, increasing the suspicions of the Belgians that some sort of attack was coming. At 0404 the Belgian commander, Jotrand, gave the order to demolish the bridges over the Albert Canal. One hour later the airborne attack struck the fort with complete surprise.

Simultaneously German troopers touched down along the Albert Canal. Unfortunately Jotrand's order to destroy the bridges had not been carried out completely and three still were standing. The paratroopers landed behind the Belgians and attacked backward into the unprotected rear of the defenders and seized the bridges. An isolated but spirited Belgian counterattack managed to destroy one of the captured bridges. The others remained intact and in the hands of the invaders. The Germans dug in and began to look anxiously to the east for signs of their advancing ground forces. By noon the next day the fort itself, weakened from within and besieged from without, surrendered.

Unfortunately von Reichenau had been one day slow in capturing the crossing assigned to him. When he finally fought his way across the Maas he was badly out of phase. It was a chagrined general, when he finally linked up with the airborne, who found that the upstart paratroopers, outnumbered and surrounded, had opened a wide highway across Belgium for his panzers and Infantry.

The major operation in Holland was commanded personally by Student, who jumped into battle with his paratroopers. With the capture of the Moordijk bridges, the Rotterdam airport and the city of Rotterdam itself, the operation was generally successful. One objective was not taken. The inadequate strength of the paratroopers of the 22d Air Infantry Division prevented them from overcoming the Dutch resistance around The Hague.

Concerning the Holland operation Field Marshal Kesselring, one of the ranking Luftwaffe leaders, said, "Today one cannot even imagine the panic which was caused by rumors, which were bolstered and increased by dropping dummies, and by the appearance of parachutists. But in spite of the panic the surrender of Rotterdam was the result of bold actions by the parachutists combined with the air attack against the defended positions in the city. The operation had been organized by Student with the thoroughness characteristic of him. In fact, it had been a military masterpiece. The success of the operation with respect to its strategic effect is incontestable. The Dutch theater of operations was practically eliminated."

German paratroopers recover air-dropped equipment after a training jump.

Certain minor weaknesses were readily apparent in this airborne operation. The commander of the Luftwaffe aircraft had conducted unrelated bomber attacks the day before the airborne operation so that the final coordination and preparation with the paratroopers had been too hurried and unsatisfactory. The drop tech-

niques and troop-carrier formations were imperfect. The Hague, objective of the 22d Air Infantry Division, was too ambitious for the strength of the division. And ground-to-air communications were unsatisfactory.

"All in all," stated Kesselring, "the operation as the first of its kind proved to be successful because, essentially, it was correctly organized and carried out with unparalleled verve. It taught us a great number of lessons, the application of which did not present any problems from a tactical or technical point of view that were unsurmountable."

During the capitulation of Rotterdam, an event that certainly changed the history of airborne, and possibly changed the outcome of the entire war, took place. Student describes it as follows: "I was standing in an open field just off the bridge to Rotterdam with one of my staff officers. We awaited the arrival of the Dutch truce officer. Colonel O'Sharroo, the ranking Dutch officer, had ordered the capitulation. We finally met the Dutch truce officer, a captain, and he drove us in his car to the command post which was located several miles behind the bridge and adjacent to a superhighway on the outskirts of town.

"In front of the command post a Dutch Infantry battalion was assembled with weapons grounded. We climbed to the third floor of the house. Twelve commanders were seated around a long table. I took a seat next to the window. As a soldier raised in the spirit of the old army I expressed my sympathy to the vanquished. I said, 'The Dutch soldiers have fought courageously and have sustained heavy casualties. Unfortunately in every battle there must be a winner and a loser. In this case, gentlemen, you were defeated.' Then we began to discuss the details of the capitulation."

Suddenly, rifle shots were heard below. The commanders were greatly disturbed by this threatened interruption of the meeting. Student stood and from one of the windows looked down into the street. Because it was a chilly evening he was wearing his general's greatcoat with white lapels, which could be seen for a distance. Suddenly Student felt a tremendous hammerlike blow against his forehead, and heard the dreadful noise of grinding and splintering bones. A vibrating humming filled his head. A shot split open a hole in his head the size of an apple. With all his might Student tried to hold on to the table, but he broke down and fainted.

This severe wound placed Germany's strongest airborne exponent in eclipse during the critical days that followed. It was during this period that Hitler weighed and found wanting Operation *Sea Lion,* the invasion of England. Perhaps, if Student had been on hand, the controversial subject of whether such an invasion would have succeeded might have had its answer because, as Student later explained it, his plan envisioned the two German airborne divisions jumping immediately after Dunkirk, forming an airhead on the extremely exposed and sensitive British ports where the vanquished troops were disembarking.

Who can say what the outcome of such a maneuver might have been? The German operation in Holland proved what panic and confusion a relatively small airborne force could cause. And while the Germans would have had to use every improvisation possible, the British themselves had little beyond their own naked lives. All the English heavy equipment, the tanks, artillery and ammunition lay on the plains of France and the beaches of Dunkirk. Only two divisions had been retained for internal protection on the British Isles. Churchill himself said, "Never in history has a great nation been so undefended to an enemy as at that time!"

Student said, "Hitler made his first mistake in World War II when he decided to occupy all of France before jumping on England. Immediately after the Battle of Dunkirk the ratio of fighter aircraft was generally favorable to us and would have been sufficient to cover the landing of the airborne." But at that time, when every lost hour worked against Germany and for England, Student lay helpless in the hospital, unable to go to Hitler and stress his plans. Student feels that even when the opportunities for a German airhead on the debarkation sites in England had vanished, it might have been possible with paratroopers and gliders to seize the airfields south of London. To exploit the slightest success all the available air Infantry then should have been slammed into these airfields. "But soon time had worked against us," continued Student. "The British were too strong in the air and on the land."

If nothing else Student's plan for invading England immediately after Dunkirk is an imaginative air-age application of Napoleonic doctrine: the pursuit of a defeated enemy, relentlessly denying him the opportunity of regrouping for another battle. Perhaps if some unknown Dutch sniper had not squeezed off his well-aimed shot in Rotterdam on that fateful day in 1940 the history of World War II might have been different. Later we shall see with what success Student was able to carry out an airborne invasion which was fraught with the same problems as the theoretical invasion of England.

During Kurt Student's period of recuperation the strong tide of military events which had uncovered the German airborne strategy to the curious eyes of the military world ebbed. From Holland the German airborne divisions were withdrawn to central Germany and placed in strategic reserve. Although the German airborne troops were resting from their victories, their demonstration of the strategic mobility available through airborne units left neither the mood nor the opportunity for rest in the allied camp. The brilliant successes of the Nazi tactical air landings in Norway, followed within a month by the major German strategic airborne victories which secured the routes for the panzers to roll through Holland and Belgium were like spotlights which illuminated a complete lack of any effective airborne troops or even theory in the allied armies.

With the advantage of almost 10 years of a militaristic treaty-flouting dictatorship, Germany had whetted the swords of two battle-tested airborne divisions. The United States Army, on the other hand, had nothing, a virtual airborne vacuum. Nothing except perhaps the dim memory of a brigadier general named William Mitchell, who in World War I obtained General Pershing's approval to parachute the entire American 1st Division behind the German lines. But the full satisfaction of this memory was blotted out by the German capitulation, which came a few weeks before this visionary plan could be put into effect. During the low-budget 1930s our vertical-envelopment concept evaporated into a totally inadequate airborne doctrine, based mainly on theoretical map exercises and a few scanty practical parachute experiments by the Army's Technical Division.

But within a few weeks after the startling German successes in Holland, General Marshall, our Chief of Staff, directed the Chief of Infantry to make immediate studies of the organization, equipment and tactical employment of the German parachute and air-transported Infantry. Maj William C. Lee, considered to be the "father" of American airborne, was the project officer. Lee later became a major general and commanded the famous 101st Airborne Divi-

sion. By September 1940 an experimental parachute test platoon of 48 men had blossomed into the 501st Parachute Battalion, commanded by Maj (also later a major general) William M. Miley. This battalion was the guinea pig of ambitious airborne experimentation to come. It is interesting, when we note that initially the War Department felt there probably would be no use for airborne units larger than battalions, to draw a parallel between this attitude and that of the German high command toward Student's plan to use airborne in division-size units.

Meanwhile Kurt Student convalesced slowly. On 1 January 1941, his head still clean-shaven because of his wound, he again assumed command of the German paratroopers, the crack 11th Airborne Corps, pride of the Nazi fighting force. Although pale and weak and requiring periodic medical care, he took an active part in planning the coming airborne operations. And faith in the airborne theory was still strong in the Fuehrer's mind. Now that Student was back at work he was immediately ordered to prepare the plans for an airborne invasion of the traditional English symbol of strength in the Mediterranean, Gibraltar. To better make his estimate and observe the potential objective Student flew to Spain. Student was forced to turn thumbs down on a plan to capture Gibraltar with airborne forces alone, because Hitler wanted to respect the neutrality of his fascist comrade, Franco. With the British in command of the sea, and no practical way of reinforcing the German paratroopers on Gibraltar, the airborne plan alone could not succeed. Franco deliberated the alternate plan of allowing German armored divisions to roll through Spain and link up with the German airborne troops, but then refused to accept the plan. "Further negotiations

German troopers jump headfirst into combat.

proved fruitless, so the plan was pushed aside," said Student.

Soon after the failure of the Gibraltar negotiations, Mussolini attacked Greece without consulting his German ally. Hitler was furious, but was obliged to aid the Italians, thus postponing the Russian campaign. Early in April the Italian and German armies attacked Greece on two fronts from Yugoslavia and Bulgaria, causing the unequally matched British Expeditionary Force and the Greek Army to withdraw under heavy pressure. The British were soon forced into a Greek Dunkirk.

In hopes of cutting off the British and Greek troops from their embarkation ports in the Peloponnesus, the 2d Parachute Regiment enplaned on 26 April 1941. Student hoped to disrupt the withdrawal by dropping on the Corinth Canal near the city of Corinth. Airborne Infantry then landed on a partially completed airfield nearby. Although the key bridge was destroyed by demolitions, makeshift repairs made it usable the same day. Since they captured against light resistance the Isthmus of Corinth, the tactical mission of these paratroopers was a complete success. Strategically, however, Student's paratroopers missed the boat, because they found themselves holding an empty bag. Three days before, the British and Greek troops secretly had evacuated the Peloponnesus and steamed full speed for their island sanctuary, Crete.

Six days before the Corinth jump, Student and a small staff flew to Hitler's headquarters at Semmering Pass for a meeting. Much to Student's dismay, Hitler personally expressed his desire to end the impromptu Balkan campaign with the occupation of the Peloponnesus. The Army generals supported this decision. "His eyes were again on his postponed Russian campaign," said Student, who wanted to keep moving beyond the Peloponnesus and hit the Island of Crete now, before the British could consolidate.

In the hands of the British, Crete was an island aircraft carrier, an unsheathed dagger against the Nazis, a base from which operations could be conducted against the Rumanian oil fields and other important Balkan installations.

Crete in the hands of the Germans would be a base from which to restrict operations of the British fleet in the Mediterranean. But, more important to Student, Crete promised to be a marshalling zone from which his paratroopers could rain down on Cyprus and the Suez Canal. This, coupled with the eastward push through Egypt of Rommel's Afrika Korps, would strangle the British lifeline. Emphatically Student felt that Hitler was repeating the same mistake that he had made after Dunkirk by not following up the decisive defeat with an immediate jump on the island sanctuary.

This time, when the necessity arose for a voice to plead the cause for the German airborne, Student was not lying unconscious in a hospital bed. Quickly he flew to Goering and convinced him of the opportunity to make Crete a Luftwaffe and paratrooper show. Accordingly Student returned to Hitler on the afternoon of the 21st of April. During a meeting that lasted well into the evening, Kurt Student explained, argued and cajoled. Finally Hitler was convinced that Crete could be taken through the use of parachute storm regiments and air-landed troops, followed by seaborne reserves. But the Fuehrer made one condition: Operation *Merkur,* the invasion of Crete, had to take place by the middle of May!

Hitler tossed Student a difficult logistical problem by placing a one-month limit on Operation *Merkur.* Most of the German airborne units were clustered around the 11th Airborne Corps headquarters in Berlin, their eyes still fixed on drop zones on the British Isles. The necessary air and sea invasion equipment was poised in northern France, ready for Hitler's on-again-off-again invasion of England. But Student immediately dispatched a warning order to his airborne commanders, and soon the parachute regiments, wearing the scrubby work uniforms of noncombat Luftwaffe service units to disguise their identity, began the long trip by train and truck to Greece. Student's quartermaster, Colonel Siebt, found the way, and into the Balkan theater flowed the required invasion equipment.

At dawn on 20 May 1941 the British

defenses around Maleme airfield on Crete were severely strafed and bombed by von Richtofen's bombers and Stukas. This attack increased to a furious intensity by 0800 at which time all but cursory British antiaircraft fire had been silenced. Suddenly, roaring in a few hundred feet above the ocean came the troop-carrier planes, flashing up to jumping altitude and spewing 2000 paratroopers into the air. The storm regiments parachuted into the olive trees and thorny agave scrubs on the drop zones around the airfield. Next came gliders wheeling gracefully into landing patterns, and then cutting a whistling wake through the air as they crash-landed, skidding and throwing trails of dust along the fields and beaches. Angry orange-red lines of British tracers cracked into the assembling paratroopers. British observers on Hill 107 overlooking the airfield directed artillery fire directly on the drop zones. Despite heavy losses both in the air and on the ground, the Germans quickly organized themselves into efficient combat units. By the time the noon sun was burning hot, the paratrooper's jump suits, mottled green and brown, could be seen controlling the hospital and penitentiary. Soon the link between Maleme airfield and the British base at Canea was cut.

Fierce fighting continued through the afternoon. As the sun sank the second phase of Operation *Merkur* began. To the east at Retimo, 40 miles away, and Candia, 75 miles down the island, two fresh parachute regiments began dropping at 1615 to seize the airfields around these towns. Although these paratroopers failed to capture their objectives and incurred heavy casualties, they confused General Freyberg, the much-decorated British commander, about the point of the German main effort and prevented him from massing any decisive strength against the established airhead at Maleme.

When General Miendl, commander of the initial storm regiment, definitely had his jump boot in the door at Maleme he called for Kurt Student to break the door down. Student was practicing his "oil spot" tactics. He was waiting to see

General Student greets an outpost of the 2d Parachute Regiment at Rethymnom, Crete, May 1941.

at which of the three airfields he would have enough success to commit all of his airborne reserves. And when Miendl sent word that Maleme appeared definitely in German control Student gave the order to exploit this success. Into the dust and confusion that was Maleme airstrip roared the 5th Mountain Division and available units of the 22d Division, shuttled into the fight in 15-to-20-man aircraft loads.

On the 21st and 22d the German troops expanded their airhead at Maleme, driving the British into their prepared positions southwest of Canea. Suda Bay offered the Germans a good harbor, so they systematically began mopping up the western portion of the island. To further exploit the Maleme successes the German supreme commander, General Loehr, sent a fleet of lightly protected troopships across the channel toward Suda Bay. This task force consisted of a reserve division and support personnel. But the Germans had not counted on the British fleet lurking stealthily in ambush. Many of the unprotected Italian and German troopships were sunk or badly hit by Admiral Cunningham's fleet. The German seaborne reinforcements turned back to the Greek harbors. Churchill estimates that 4000 German soldiers drowned in this encounter.

For the British it was a hollow sea victory. By being drawn into position near Greece the fleet exposed itself to the fury of von Richtofen's VIII Air Corps. Severe damage was inflicted on three quarters of the British ships. Cunningham had to withdraw, leaving the land forces isolated on Crete.

By the 30th of May the smoke had cleared over Crete. Another airborne lesson had been given the allies by Kurt Student. The facts of the battle were harsh and clear. For almost a month before Student's airborne landings British intelligence, and the still-operating American embassy in Athens, had warned General Wavell, the British commander-in-chief in Egypt, and General Freyberg that the Germans were frantically preparing for an airborne invasion of the island. On Crete itself there were approximately 28,600 British and 10,000 Greek troops, and 4000 labor soldiers. Slightly more than half of this strength was concentrated in the Maleme airfield sector. Of all the troops on Crete, however, probably only about 12,000 could be considered in top-notch fighting condition; the remainder had escaped from Greece with only light weapons and equipment.

But again the airborne assault had come like a quick right to the jaw. In 10 days the airborne forces, numbering little more than 18,000, had defeated a waiting enemy twice as strong in numbers. And for the first time in history airborne troops alone, unsupported by sea or land forces, conquered a distant island protected by an overwhelmingly powerful fleet and garrisoned by twice as many troops. Now Hitler could push on to the island of Cyprus and the Suez Canal. Student's day of airborne had arrived.

It is paradoxical that General Wavell, whose troops had been defeated by the first entirely airborne operation in history, had also been a guest witness along with Kurt Student at the first large peacetime Russian airborne maneuver. In 1936 during the massive Russian maneuvers outside Kiev, Generals Wavell and Student, and other foreign military observers, saw 1000 Russian paratroopers and 5000 air-landed troops brought into the stubble fields. Prophetically Wavell reported at that time, "If I had not seen it with my own eyes, I would not have believed such an operation possible." Possibly this attitude lingered on, because prior to the invasion of Crete Wavell told Churchill that the Germans

neither would nor could attempt an airborne invasion of the island.

On the 19th of July 1941, still flushed from the airborne capture of Crete, General Student arrived in East Prussia for a visit with the Fuehrer in the Wolf's Lair, near Rastenburg. Student had good cause to be in high spirits. No matter how slim the margin between success and failure on Crete had been, the strategic value of airborne had been proved. Crete had made Student one of Germany's military heroes. He was to receive the Ritterskreuz, the coveted Knight's Cross with Oakleaves, the second order of Germany's highest decoration.

The thick pine forest blotted up the sunlight as General Student's car passed through the barbed-wire barriers surrounding the Wolf's Lair. Here were the secret concrete bunkers that housed the nerve center of the Third Reich. A dense canopy of branches covered all but the slitlike windows of the bunkers. The air was chill and damp. Student, his spirits somewhat dampened by the atmosphere, made his way toward the block that housed Hitler's private suite and offices.

With the customary honors Hitler presented the Ritterskreuz decoration to Student. After the ceremony Student and Hitler engaged in a general discussion about airborne. Suddenly Hitler blurted, "Student, Crete has proved that the day of the paratrooper is over. Airborne troops are a weapon of surprise. Surprise is now impossible."

Student was so astounded by this statement that he thought Hitler was joking. He was soon to discover that the Fuehrer was serious.

(To be continued in January issue.)

CAPT BOYD T. BASHORE enlisted in the Army in 1943. He attended Parachute School the following year and then remained at The Infantry School as an instructor. In 1945 he was commissioned from OCS but later resigned his commission to attend the United States Military Academy. Upon graduation from the Academy in 1950 he was assigned to the 508th Airborne Infantry Regimental Combat Team. Two years later he went to Europe where he served as a staff officer and company commander in the 42d Armored Infantry Regiment. After completing the advanced course at The Infantry School last May, Capt Bashore began his present assignment as aide-de-camp to Maj Gen Joseph H. Harper, Chief of the Joint U.S. Military Advisory Group to the Republic of the Philippines.

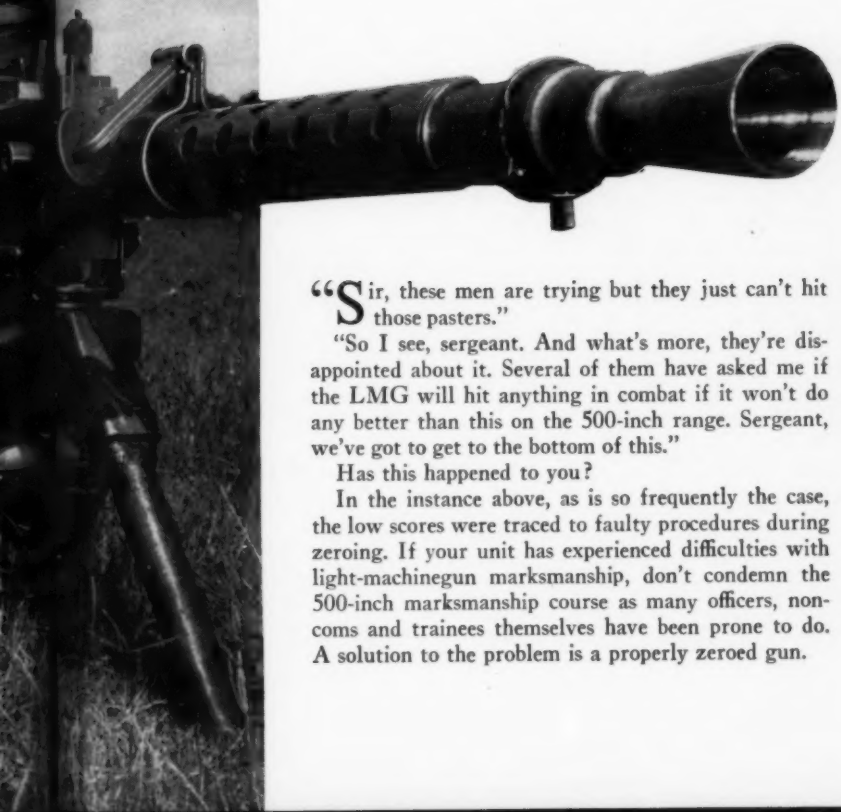
COMING!—*QUARTERLY* INDEX

In answer to requests from numerous readers we are publishing, in the January issue, a complete index of articles that have appeared in the *Quarterly* since January 1953. The index will include the title of each article, the author, and a brief statement as to its content.

Proper zeroing will improve our light machinegun firing.

ACCURACY with the LMG

By LT GEORGE W. HERNDON



"Sir, these men are trying but they just can't hit those pasters."

"So I see, sergeant. And what's more, they're disappointed about it. Several of them have asked me if the LMG will hit anything in combat if it won't do any better than this on the 500-inch range. Sergeant, we've got to get to the bottom of this."

Has this happened to you?

In the instance above, as is so frequently the case, the low scores were traced to faulty procedures during zeroing. If your unit has experienced difficulties with light-machinegun marksmanship, don't condemn the 500-inch marksmanship course as many officers, noncoms and trainees themselves have been prone to do. A solution to the problem is a properly zeroed gun.

While the revised machinegun manual (FM 23-55) devotes a few paragraphs to this subject, and TF 7-2230 covers zeroing the LMG, this article, based on methods of instruction used by The Infantry School's machinegun committee, supplies additional information on zeroing.

The machinegunner's difficulties began with the adoption of the M1919A4 LMG in 1925. At that time the present sighting system was introduced. Since then, however, important changes have been made in the front sight.

For some years the front-sight bracket-body screw was used only for major changes in elevation; the rear sight provided minor adjustments. In 1943 when

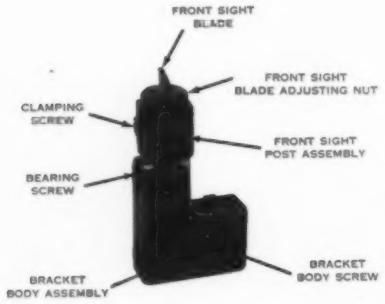


Figure 1. Front sight.

the M1919A6 appeared, minor changes during zeroing were made with the bracket-body screw. The sights were improved in 1953 when the clamping screw was added to the front-sight post (Figure 1). This allowed the bracket body to remain fixed as changes were made within the sight post. A new front sight now appearing has no clamping screw. In its place is a plunger mechanism coupled with a serrated adjusting nut.

Each of these improvements was designed to increase the accuracy of our machineguns. However, there remains one factor that cannot be changed by adding a new improvement—the man behind the weapon. The gunner must be trained—and that training must include the ability to zero the gun—if we are to get accuracy.

This instruction need not be complicated but it must be clear and it must be thorough. The task of zeroing the light machinegun is an exacting one. The procedure can be divided into four phases:

1. Proper emplacement of the weapon.
2. Correct position and grip.
3. Use of proper techniques during zeroing.
4. Immediate detection and correction of errors in steps 1, 2 and 3.

Naturally, the gunner must maintain the proper sight alinement and sight picture.

During emplacement of the tripod (Figure 2), pay particular attention to the sleeve latch. The sleeve lock spring sometimes weakens and fails to hold the sleeve latch properly. The traversing bar must be level. Place the gun on the tripod. The elevating mechanism (Figure 3), with sufficient elevating screw exposed above and below the elevating handwheel to properly engage the exercise on the 500-inch target, is attached to the weapon and the mount.

An important item often overlooked is proper shimming. That is, proper use of cleaning patches or other material to attain a very close fit at critical points. Usually, three places should be shimmed:

1. Between the top of the traversing bar and the inside of the traversing-bar slide.
2. Between the upper elevating-screw yoke and the mounting ears of the bottom plate.
3. If necessary, between the pintle and the pintle bushing. Check this shim to be sure the pintle lock will fully engage.

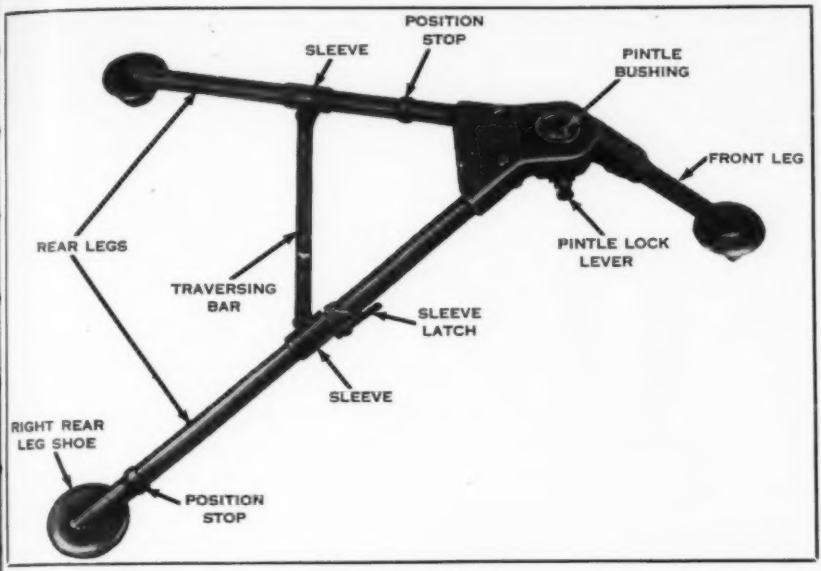
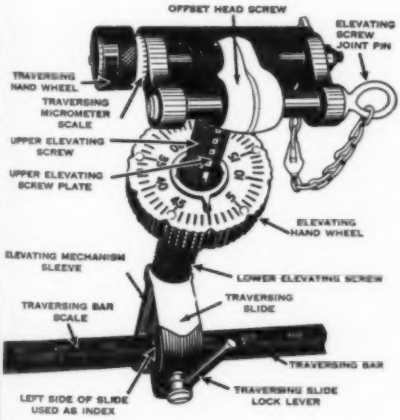


Figure 2. M-2 tripod.

Emplacement of the tripod shoes is important, too. If the ground is soft, you need only pound or stomp these into place. Hard ground may require the use of a shovel to loosen the soil.

Check to see that only the three shoes are in contact with the ground. No other part of the tripod, including the elevating mechanism, should touch.

Figure 3. Elevating and traversing mechanism.



After emplacing the gun, don't forget these necessary safety and "before firing" checks:

1. Run a half patch through the bore to insure its firing readiness.
2. Make sure the retaining-clip assembly on the flash hider fits properly.
3. See that the pintle lock lever is down, with the lock fully engaged.
4. Check the front-sight bracket-body screw—it should be tight.
5. Be sure the moving parts inside the receiver are clean and lightly oiled.
6. Adjust correct headspace.
7. See that the elevating mechanism is properly affixed.

Loosen the clamping screw on the sight post and turn the adjusting nut until the front-sight blade is in its lowest position. This should cause the strike of the bullets to be high. Do not forget to tighten the clamping screw.

Check the rear sight (Figure 4) for zero deflection. The shoulders of the sight slide are placed on the 600-yard graduation. Note that the shoulders of the sight slide are used. In many instances the line extending horizontally

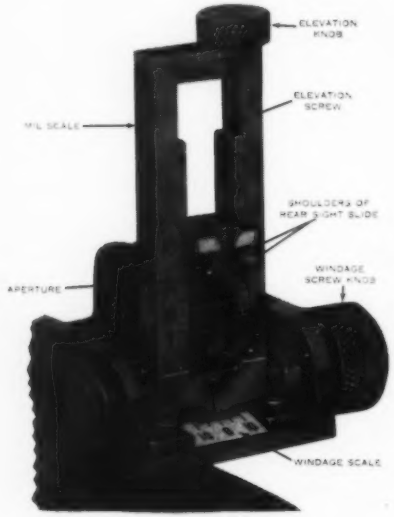


Figure 4. Rear sight.

through the aperture in the sight slide is not easily discernible. Therefore, use the shoulders which are more visible.

Along with the proper emplacement of the weapon, the gunner must use the correct position and grip. With the A6 on tripod, the left hand is on the elevating handwheel during all firing. The left elbow is inside but not touching the left rear leg. The right hand is on the grip; the right elbow is under the body and directly behind the grip.

Exert pressure down and to the front. In the past, the idea of cross pressure sometimes was taught. Vibration makes this type of pressure inconsistent. With pressure down and to the front, only one thing can happen — the weapon stays where you lay it.

The body is alined behind the gun. A line extended through the barrel would cut the right shoulder and the right hip pocket. The feet are well apart, heels down with the toes digging into the ground. To illustrate pressure down and to the front, have the student do a push-up while maintaining the correct position and grip. (Both hands are to remain at their proper places on the gun.)

Now lay on target (or paster) number 1 and, on command, fire a six-round burst (Figure 5). To group all six rounds together, raise the trigger once only. Proper zeroing can now proceed unless, of course, the center of the first burst is at the bottom center of the aiming paster—in which case the gun is zeroed.

After firing the first burst, clear the gun and make a safety check. The coach then goes forward to locate the center of the shot group (Figure 6). It should be high. Let's assume that it is. A horizontal line and a vertical line may be drawn through the center of the group to aid in placing a new aiming paster. This paster should be half-an-inch

Figure 5. Proper sight picture for the LMG. Aiming paster is centered on top of front-sight blade.

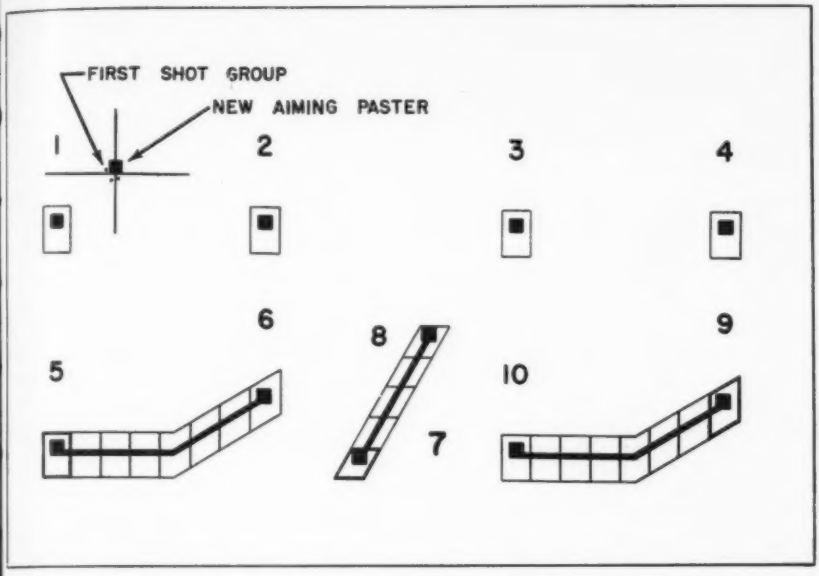


Figure 6. A new aiming paster is placed over center of first shot group.

square. The standard black paster for repairing M-1-rifle targets may be quartered and used. It is recommended that such a paster be used only to aid the student in initially locating and adjusting to the center of the shot group. The lower edge of the paster rests on the horizontal line, centered on the vertical line.

Following the placement of the new aiming paster, the gunner uses the traversing and elevating handwheels to relay on the first target. This compensates for any disturbance in the lay of the gun during clearing. At this time it is most important that the gunner maintain the same position and grip used to fire the first burst.

The coach, directed by the gunner, makes the necessary sight changes. Here we are to change our sights so that the line of aim will coincide with the center of the shot group. The sights will be adjusted to attain a correct sight picture on the new aiming paster.

As the gunner looks through the sights, the coach moves the windage-screw knob until the front-sight blade appears to be directly below the center of the new aiming paster. The coach then moves to the front of the gun and loosens the clamping screw. He rotates the adjusting nut, raising the blade until the correct sight picture appears. Before leaving the front sight, he tightens the clamping screw.

Lay on the next target, fire another burst and check your zero. If the sights are set properly, record the zero deflection. If not, repeat the zeroing procedure. Remember two important points:

1. The gunner re-lays on the initial paster and maintains the correct position and grip throughout the sight changing.
2. The coach makes all sight changes.

Let's go back to our first burst. If the shot group is below the initial paster, we have a problem. The previously lowered

sight blade will prevent normal adjustment of the front sight. There are four possible solutions:

1. Check the front sight to see that the blade is all the way down, refire and again check the strike of the bullets.
2. Use a false sight setting.
3. If the bracket body permits, loosen the bracket-body screw and reset the bracket body.
4. If you cannot do the necessary work yourself, send the weapon to Ordnance for the required adjustments.

The importance of early detection and correction of difficulties within the gun or gunner is evident. Below is a checklist of the more frequent problems:

1. Traversing-slide lock lever not tight.
2. Overshimming, which causes parts to bind.
3. Pintle lock not fully engaged.
4. Not starting with front-sight blade all the way down.
5. Rear sight not set at 600-yard graduation.
6. Incorrect headspace, causing large shot group.
7. Left hand not on elevating handwheel during firing.
8. Right elbow not under the body.
9. Body out of line.
10. Not applying pressure down and to the front.
11. Firing two- or three-shot bursts (not getting true effect of a six-round burst).
12. Not re-laying on original paster.
13. Gunner not keeping correct position and grip during zeroing.
14. Gunner making own sight changes.

This article has discussed one system of zeroing which experience has proved workable. Purposely it dealt with the human element involved since both instructor and pupil must have a genuine interest in marksmanship before progress can be made. Hard work and attention to the details outlined above will give your unit gunners who are qualified —not just familiarized.

Lt George W. Herndon achieved the rank of master sergeant while serving with the Kentucky National Guard and was commissioned a second lieutenant in the Infantry upon graduation from Western Kentucky State College in 1954. After attending the basic Infantry officer course at The Infantry School, Lt Herndon completed both Ranger and Airborne training. He is currently assigned as an instructor in the Weapons Department.

TOUCHE!

The colonel, an interesting and dynamic instructor, realized he was fighting a losing battle for the attention of the two second lieutenants who had been talking to each other from the start of the class. The other student officers understood the teaching points of the well-decorated instructor as he explained small-unit tactics. But, when called on to explain an adequately covered fundamental maneuver, it was obvious that the two conversationalists had learned nothing. Worse still, they seemed indifferent to their lack of manners and responsibility.

With a certain amount of charity, but with the force of combat experience, the colonel addressed the two lieutenants, "Gentlemen, the American soldier has a right to the finest leadership. When you look in the mirror you probably see yourselves as future generals. But, I wonder if you may not be looking at potential murderers?"

—Captain Arthur R. Driscoll, Jr.

QUIZ

Answer the following questions to determine whether you are a bolo, recruit, marksman, sharpshooter or expert. Each question is worth 10 points.

1. The fording depth of the M-59 armored personnel carrier is (select one):
   a. 36 inches.
   b. 48 inches.
   c. 72 inches.
   d. unlimited.

2. Name two electronic means by which Infantry can communicate with attached tanks.

3. The maximum number of parachutists for the C-119 aircraft is (select one):
   a. 34.
   b. 42.
   c. 50.
   d. 62.

4. What items of marginal information should be placed on an aerial photo before it can be used effectively and classified as a photomap?

5. Frequency of command inspections is determined by (select one):
   a. Army regulations.
   b. Individual commanders.
   c. Division SOP.
   d. Field manuals.

6. What are the two common malfunctions characteristic of the 57mm, 105mm and 106mm rifles and how should they be corrected?

7. When starting an automobile engine in cold weather, it is wise to (select one):
   a. Allow time for the engine to warm up before driving off.
   b. Run the engine at moderately high speed in order to warm it up quickly.
   c. Pull the choke out the entire way and keep it out until the engine has reached operating temperature.
   d. Pump gas pedal to allow gas to enter carburetor.

8. In an envelopment, the secondary attack is usually frontal and it (select one):
   a. Supports the main attack by fire alone.
   b. Is an attack to seize an assigned objective.
   c. Is a demonstration designed to immobilize enemy reserves.
   d. Is assigned a narrower zone than the main attack.

9. The 4.2-inch mortar, M-30, has a traverse capability of 6400 mils by shifting the bridge. How far can a gunner traverse left and right of center on the 4.2-inch mortar using only the traversing mechanism?

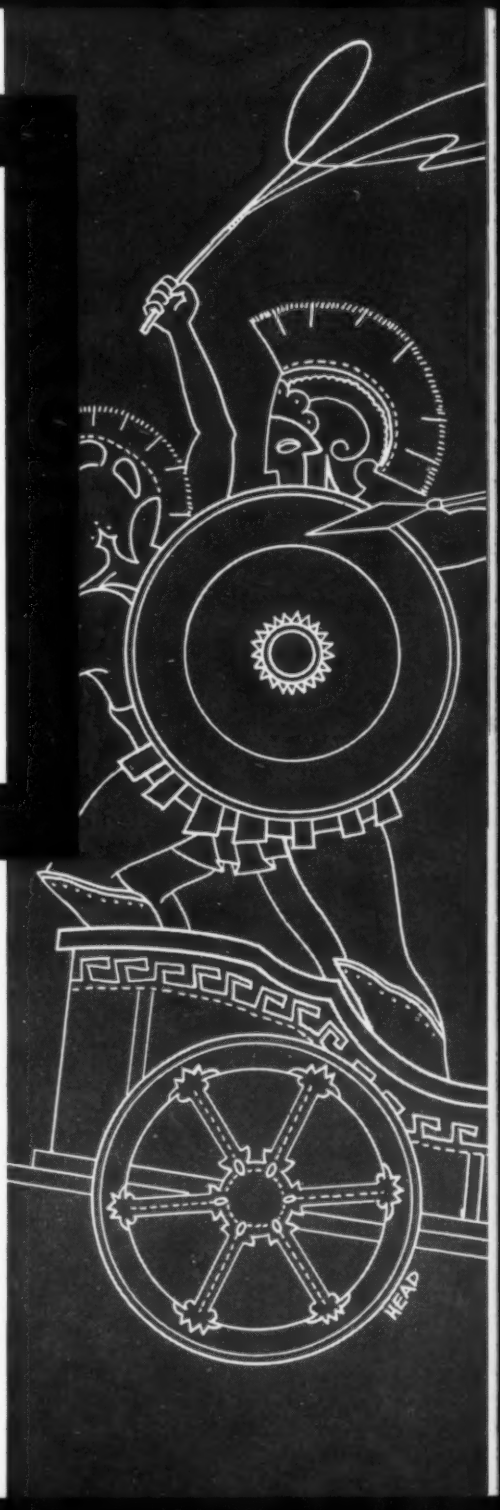
10. At all levels of command, within a field army, psychological warfare planning, advisory and supervisory functions are the staff responsibilities of (select one):
    a. G1 (S1).
    b. G2 (S2).
    c. G3 (S3).
    d. G4 (S4).

(For answers turn to page 87.)

US ARMY
12E668
3A-714Δ

CHARIOT FOR THE QUEEN

Infantry, the Queen of Battle, will have greater mobility and better protection when she thunders into combat in armored personnel carriers.



The days of the long foot-march to reach a line of departure or defensive area may be past. The kind of warfare we can expect in the future will not wait for slow-moving, foot-slogging Infantrymen.

In any new conflict that might be thrust upon us we can expect to be outnumbered. Whether we are forced to fight a nuclear war, conventional type or any combination of these we will be up against an enemy well equipped with modern weapons. And we can expect to fight over great distances requiring speed, mobility and flexibility.

With these and other requirements in mind, the Infantry has long sought a per-

By Lt Leland E. Andrews

sonnel carrier that could put the foot soldier into combat fast, close to his objective or defensive position and with some protection from small-arms fire and artillery and mortar fragments.

A number of attempts have been made to provide such a vehicle, but none measured up until the Army developed its latest and by far its best armored personnel carrier, the M-59. Here is a vehicle that will give the Infantry "protected mobility." It will keep the Infantry moving through small-arms fire and fragments, over rugged terrain or water.

This full-tracked vehicle is the latest development in the history of armored personnel carriers — a history as old as warfare itself. If we look briefly at this history we find that Ninus, King of Assyria (2059 BC) was probably the first to use a war chariot in combat. These ancient Assyrians, and later the Greeks, Egyptians, Persians, Romans, Britons and Carthaginians all used war chariots. Reference to early employment of "armor capability" may even be found in the Bible: "And the Lord was with Judah; and he drove out the inhabitants of the mountains; but he could not drive out the inhabitants of the valley because they had chariots of iron."—Judges I, 19.

Although the idea of armored personnel carriers had its birth in ancient times, the trend of progress was directed more to the tank or mobile fort. The latest armored personnel carrier development probably can be traced directly to a British development during the Boer War. The need for protecting convoys in South Africa led to the development of a cross-country armored train capable of protecting accompanying troops. Fowler steam tractors were armored in England with ¼-inch plates, and special armored trailers were built to be drawn behind the tractors. These trains, two of which were built too late for use in the war, were ponderous affairs with a limited

radius of action. The tractors could travel for 30 miles with one filling of fuel and from 10 to 17 miles on their 430-gallon water supply. The tractors weighed 24 tons, and each trailer weighed 6 tons. Thirty men or one fieldpiece could be carried on a trailer, seats being provided for the riflemen, and ramps being carried for the fieldpieces.

In the early days of World War I the British War Office directed the Royal Navy to design 18 armored track-laying cars. The nautical origin of the armored vehicle is evident today in such terms as deck, turret, sponson, barbette, superstructure, bow, hull and hatch. It was only in the closing months of World War I that armor achieved any significance. Great Britain at that time had thousands of armored vehicles in the field and under construction. Little can be said of Germany's armored vehicles, which amounted to a mere 45 tanks employed in the closing phases of the war.

With the introduction of Blitzkrieg warfare by Hitler in 1939, U.S. Army commanders began searching for an armored Infantry vehicle capable of accompanying the highly mobile and heavily armored tanks. Borrowing from the hard-hitting German panzers, the half-track was employed successfully by many units as a scouting and reconnaissance vehicle. Although the half-track offered some protection to the driver and assistant driver, it did not shield the passengers from small-arms fire or artillery and mortar fragments. In addition, the half-track failed in many instances to keep pace with the more mobile tank.

The M-39 personnel carrier came into being late in World War II and was used in the Korean conflict. Although the M-39 still lacked overhead cover for passengers, it did have the desired mobility of the full-track vehicle and, in many cases, could outmaneuver the heavier tank. Its silhouette resembled half a tank.

And so it was—a tank, stripped of turret and deck. The M-39 was very agile but also very unsafe for its passengers and crew.

In 1951 the Army introduced the T-18 armored Infantry vehicle. During Exercise Longhorn in Texas the following year, the T-18 was put through its paces to determine whether this was at long last *the* vehicle. Units reported in favor of its adoption and, with few modifications, the T-18 was redesignated the M-75 and placed in operation.

The M-75 was a full-track vehicle with the appearance and mobility of a tank. Shaped like a huge rectangular box, with two doors at the rear for riflemen to embark and debark, it provided all-

Interior of the M-59. Rear loading ramp lowered.

around protection against small-arms fire. This completely enclosed vehicle had all the features which commanders had requested. But a new problem arose when using units found that Infantrymen burdened with weapons and field equipment had great difficulty in passing through the small access doors. Speed of debarkation was greatly reduced because the Infantryman literally had to hurl himself through the small access door to the ground. Where speed of employment was essential, the M-75 didn't fill the bill.

Then came the M-59 which seems to be the answer to the Infantry commander's fervent wish for a truly combat-able vehicle. After several years of testing there are very few operational bugs which have not been eliminated. The M-59 undoubtedly will be the prototype of our armored personnel carriers of the future.

Fully tracked, agile on land and water, the M-59 is an ideal multiuse Infantry vehicle. As a personnel carrier, it transports, in relative ease and safety, 10 fully equipped Infantrymen in the large passenger compartment, plus a driver and vehicle commander in a separate crew compartment. As a cargo carrier, it handles up to 3100 pounds over land or water. The M-59 is air-transportable by the C-124. It can be used satisfactorily as a litter carrier, weapons carrier, mobile command post or reconnaissance vehicle. Its total exploitation is limited only by the initiative and ingenuity of its commander.

Powered by two GMC 302 six-cylinder engines (the same engines used in the M-211 2½-ton truck) located at the sides, this vehicle can reach a maximum speed of 32 mph on land and 4.3 mph on water. The M-59 has a cruising range of 120 miles on its 130-gallon fuel capacity. It is armed with one .50-caliber machinegun mounted on the commander's

cupola, and one .45-caliber submachine-gun stowed on the left wall of the driver's compartment. The motion of the tracks provides propulsion and steering in waterborne operations.

The greatest single improvement in the M-59 over the M-75 is, of course, its amphibious qualities. Next in importance is its accessibility in action. The watertight, rubber-sealed, power-operated loading ramp, comprising almost the entire rear of the hull, provides immediate access to and from the inner compartment. There are additional access doors over the engine compartments and in the removable cargo cover over the personnel compartment. Hatches are provided over the driver's and commander's seats.

Although the small door in the loading ramp normally is used by the crew, it could be used as an emergency exit for crew and passengers.

The hydraulically operated loading ramp can be lowered with the engines stopped. Both engines are used to raise the ramp, but in an emergency it may be raised with power from one engine.

In appearance the carrier is neat and trim, with a low silhouette. It is almost 18 feet long, 7½ feet high and weighs 41,800 pounds loaded for combat.

The oversized plywood flap extending from the front slope of the hull is the trim vane — a stabilizer for amphibious operations. It is used at water speeds over 3½ miles an hour to maintain stability by preventing the hull from dipping too deeply into the water. Fording depth of this vehicle is, of course, unlimited.

The M-59's ability to operate in the face of small-arms and artillery fire comes from its welded steel armor. Of course, heavy machineguns, mortars and artillery still must be regarded with healthy respect, but they need not be considered quite so heavily as factors in tactical planning. And speaking of tactical planning, it must be pointed out that the M-59 is considered only as battlefield transportation. The Infantryman must dismount and fight on foot — as he has done for centuries.

Infantry commanders will be impressed with the ruggedness of this new vehicle. Here is dependability, security and even comfort, at last, in a combat vehicle.

Troops will heartily endorse the roominess, ease of access and all-around protection from small-arms, mortar and artillery fire. They will be doubly impressed with its riding qualities, as this vehicle is equipped with torsion-bar suspension and individually sprung road wheels which travel on steel tracks with rubber grousers. Vertical movement and road bounce are cushioned by two double-acting shock absorbers on each side of the vehicle.

The driver can control his vehicle easily and without moving from his form-fitting adjustable seat. All operating controls are located in the driver's compartment. Further, the M-59 affords maximum visual control through adequate vision ports, external white and infrared driving lights, plus three fixed periscopes for buttoned-up daytime driving and an infrared periscope for driving under complete blackout conditions.

The vehicle commander will find that his compartment gives him visual control of each man in the vehicle. And he can cover 360 degrees with his .50-caliber machinegun from his cupola, a rotatable dome in the forward right side of the hull roof.

These are some of the principle features and characteristics of the M-59. Now let's look at the vehicle again, this time from a preventive-maintenance viewpoint—an important viewpoint for commanders of units with M-59s.

We will start with the unusual-looking trim vane and examine the vehicle for proper maintenance indicators. The

trim vane is checked by having the driver operate it, up and down, several times. If it moves freely and does not show signs of excessive stress and strain, it is functioning properly. While at the front of the vehicle, inspect the service lights, light brackets, lifting eyes and infrared lights. The white lights are inspected visually, but the infrared lights must be checked by placing a hand over them. If they are working properly, they become very warm.

Move to the side of the vehicle to inspect the tracks and suspension system. The track is made up of 72 track blocks connected by track pins. When inspecting the tracks you are limited to assuring that the track blocks are unbroken and that the track-pin bolts are all tight and present.

Over each track is a hard rubber covering, the track shroud, which has only one function—to aid propulsion in water. The track shrouds form a "dead space" between the upper portion of the track and the hull. Through this dead space water is forced by the rotating treads, thus producing the propelling force. Carefully check the condition of the shrouds, as cracks or "dead" rubber will cause the vehicle to lose one of its most valuable assets — maneuverability in water.

Also, while at the side of the vehicle, examine some of the components of the suspension system. First inspect the drive sprockets. At this point, the power from the engines, which has been transmitted through the propeller shaft, right-angle drives, the differential and final drives, motivates the tracks. This then is a point of prime importance to the proper functioning of the vehicle. An indication of a poor or worn drive sprocket is mushrooming of the gear teeth. After a certain point the teeth will not wear down, but will spread out—or mushroom. Any sign of mushrooming is a strong indication that it is time to replace the driv sprocket.

Moving to the rear, check the tw shock absorbers on each side of the sus pension system, one on number 5 roa wheel and one on number 1 road whee (the road wheels are those resting on th tracks). The shock absorbers have a dua purpose: one, to absorb most of the roa shock; and two, to protect the torsion-ba suspension.

In addition to the shock absorbers o numbers 1 and 5 road wheels, number 1, 4 and 5 are provided with bumpe springs which limit the action of the roa wheels and prevent the vehicle fro bellying down when crossing an obstruc tion. On numbers 2 and 3 road wheel there are no bumper springs. They ar replaced by a positive stop—a piece o metal placed so that the road wheel hit it and stops. If this type of positive ac tion stop were used on all wheels, th road-wheel arms would quickly becom damaged through constant shock.

Each road wheel is connected to a road-wheel arm, which is splined to a tor sion bar—a solid steel bar with a built-in resistance to twisting. It is very weak as far as bending is concerned, but will twist without damage and, because of its resistance to twist, is constantly applying pressure to the road-wheel arm, keeping it in contact with the track at all times. If the vehicle appears to be leaning to one side, it is a good indication that a torsion bar is broken. Usually number 1 torsion bar is the one to break, although any or all may become broken under severe road conditions.

There are three support rollers in the suspension system. These merely support the upper portion of the track and assist in preventing the track from dipping as it rides over the top. The track is guided around its path by center guides which also keep it alined. During an inspection check that none of these items is missing

The M-59 will carry a mortar squad and its ammunition.

Last in the suspension system is the compensating idler wheel. This wheel changes the rearward direction of the track to a downward-and-forward motion and tends to keep proper tension on the track at all times. It is connected to number 5 road wheel by a track-tension adjusting link. Adjusting this link lengthens or shortens the track to equalize and maintain track tension.

Inspectors should pay particular attention to lubricant leaks from bearing seals.

In our preventive-maintenance trip around the M-59 we should scrutinize all exterior surfaces for chips and marred areas, noting particularly any bare spots in painted surfaces which might permit rust or reflection.

From an automotive standpoint the interchangeability of parts in the M-59 is an outstanding feature. Although there is some slight modification in the oil pan and transmission of the engine, this is the same engine found in the standard M-211 2½-ton truck. Most of the parts can be serviced and adjusted by a mechanic sitting right in the carrier. But in the event that he has to service the entire engine there is a special tool, the "monorail," which permits him, without assistance, to roll either engine into the middle of the compartment floor for servicing.

Like the GMC engine of our 6x6 truck, the M-59 engines have a hydramatic transmission. They have been modified for use in the M-59, but the modification is slight and will pose no problems to mechanics who are familiar with the transmission in the M-211. Once the power leaves the transmission it goes

Troops get out of the M-59 in a hurry.

through a power train which differs greatly from that of the truck. Propeller shafts and universal joints transmit engine power from each transmission through right-angle drives to a controlled differential. The hydramatic transmission provides for automatic speed changes after the driver has manually placed the control lever in a selected range position. The differential, which is centrally located in the extreme forward section of the hull, provides two output gear ratios and transmits power through the universal joints to the final drive. Both engines have their power joined together at the differential to motivate the tracks through the final drives. One engine, therefore, does not run one track.

Steering and braking are accomplished by the steering brake levers connected to the brakes in the differential. By applying the right brake lever, the driver slows or stops the power flowing to the right track. With all the power being transmitted to the left track, it speeds up, creating a turning motion to the right. To stop the vehicle, pressure is applied to both levers.

The M-59 utilizes the new alternator electrical system in place of the more common generator type. The alternator system consists of an alternator-generator, a rectifier and generator regulator. The main advantage of this system is that it produces a higher amperage output at idling speed. Too often the engine on a radio-equipped vehicle is run at full or half throttle in a stationary position to generate enough voltage to keep the radio operative and still protect the batteries. Although the batteries may keep their voltage through this method, the engine itself can take only so much of this open-throttle abuse without finally breaking down. The alternator-generator system is on the left engine. This engine is al-

ways started first to generate voltage as rapidly as possible.

Last but not least, examine the top of the M-59 which contains the air-vents and fillers for water and gasoline. Inspect to see that nothing has been placed or temporarily stored here that might cover and block the air-vents or grilles. Besides furnishing the necessary air to run the engines, the grilles at the top are the only source of air and ventilation for passengers and crew when the vehicle is buttoned up.

The M-59 armored Infantry vehicle is safe, comfortable and dependable. And with proper preventive maintenance and care it is extremely durable.

Lt Leland E. Andrews' four years of service with armored units have given him a good understanding of tracked vehicles. After enlisting in the Army in 1946, he served at the Bremerhaven Port of Embarkation. Lt Andrews was commissioned in 1952 from OCS at Fort Riley and, after completing the associate company officer course at Fort Knox, served with the 30th Tank Battalion as a platoon leader and motor officer until 1953. During that period he attended the new Vehicle Ordnance Maintenance School in Detroit. He then served for two years as adjutant of the 89th Tank Battalion in Korea and Hawaii. Earlier this year, Lt Andrews began his present assignment as an instructor with the Track Committee, Automotive Department, The Infantry School.

Answers to . . . QUIZ

Possible score 100 points, Expert 90-100, Sharpshooter 70-80, Marksman 50-60, Recruit 30-40 and Bolo 0-20. For detailed discussion of the answers check the references listed.

1. **d.** The M-59 is amphibious. Consequently, it has unlimited fording depth. (Par. 4a, Section II, TM 9-7002, April 1954.) See "Chariot for the Queen" on page 78.

2. The two electronic means by which Infantry can communicate with attached tanks are radio and wire. Radio communication is provided between foot troops and tank units when they are operating as a team. All rifle units are provided with radios for direct communication with individual tanks and tank units. The regiment can establish direct communication with the division tank battalion when required.

Wire communication between tank crews and personnel outside the tanks is available through the telephone handset on the rear of each tank. This handset is connected to the tank interphone system. Expedients may be used if additional wire communication with individual tanks is required. (Par. 152 a, b, FM 7-24, October 1950.)

3. **d.** The C-119 has 42 seats; however, 20 additional seats can be installed which give the aircraft capacity for air-transporting 62 parachutists. (Appendix XXI, Section IV, FM 57-30, January 1952.)

4. Magnetic north and the scale must be placed on an aerial photo before it can be used effectively or classified as a photomap. A photomap may be a single aerial photo or several photos put together to represent a larger area. It will have on its margin various items of information — the most important of which are the arrow indicating magnetic north and the scale. (Chap. 11, Par. 1, FM 21-25, August 1944.)

5. **b.** Periodic inspections of equipment will be conducted by the commanders of the using unit and their supervisors as a part of the process of maintaining a high standard of training and discipline with-

in each unit. The frequency of inspection will be determined by the individual commander concerned. (Section VI, Par. 29b, AR 750-5, January 1953.)

6. The two common malfunctions characteristic of the 57mm, 105mm and 106mm rifles are recoil and forward movement. If a recoilless rifle moves forward or recoils when fired, it is said to be out of balance. Forward movement results when the openings in the breechlock are too large, allowing too much gas to escape. If the openings are too small, not enough gas will escape.

The size of the orifices in the 57mm rifle is controlled by the throat ring. In the 105mm and 106mm rifles, the size of the orifices is controlled by the vent bushing.

If the forward thrust of the 57mm when firing from the shoulder is strong enough to pull the rifle off the target, the rifle should be rebalanced by replacing the throat ring with one having the next higher number. Use of a larger throat ring reduces the size of the openings in the breechlock, thereby permitting less gas to escape. If the 57mm rifle recoils, it indicates that there is either an obstruction in the orifices which should be removed or a throat ring of too large a size is being used. If the throat ring is too large, substitute a smaller numbered ring with new throat blocks.

When inaccuracy due to improper balance in the 105mm or 106mm rifle is beyond acceptable limits, the rifles should be sent to Ordnance personnel for replacement of the vent bushings and breechlock. (Par. 31 a, b, c, FM 23-80, October 1952, and Par. 20 a, b, c, FM 23-82, December 1955.)

7. **a.** The engine must never be run at more than a very moderate speed when it is started in cold weather. Before increasing the engine speed, the driver must allow plenty of time for the oil to warm up enough to circulate freely. The vehicle should not be moved until the engine is thoroughly warmed. (Chap. 23, Par. 258b, TM 21-300, October 1951.)

8. **b.** In an envelopment, the main attack is directed against the flank or rear of the initial disposition of the enemy's main forces and toward an objective in rear of his front lines. It is assisted usually by a secondary attack directed against the enemy's front.

Secondary attacks are directed against objectives whose capture or threat of capture assists in the main attack. Secondary attacks hold the enemy in position, deceive him as to the true location of the main attack, and induce him to dissipate his supporting fires and reserves outside the decisive area. Secondary attacks are characterized by broad fronts, maximum available firepower in the assault echelon and few reserves.

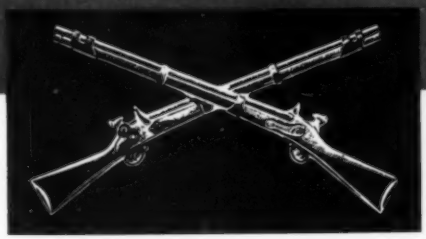
Diversions, demonstrations and attacks by fire alone are not classed as secondary attacks. Such operations assist in neutralizing and deceiving the enemy but are not true attacks and the forces so employed should not weaken the assault echelon. (Par. 164 (2), d, and Par. 166a, FM 7-20, March 1950.)

9. By using the traversing mechanism on the 4.2-inch mortar, the gunner can shift 125 mils right and 125 mils left of center. (Par. 368b, C3, October 1952, FM 23-92, April 1951.)

10. **c.** Tactical employment of psychological-warfare units assigned to field armies is a responsibility of the army commander. Psychological-warfare planning, advisory and supervisory functions at field-army, corps and division headquarters are a responsibility of G3 of the army, corps or division to which the unit is assigned. Duties of field-army, corps and division psychological-warfare staff officers must be within the framework of plans and directives laid down by the theater commander. (Par. 10a, FM 33-5, March 1955.)

What will they do in the Infantry?

BY MAJ GEN ARMISTEAD D. MEAD



I have often been asked by Infantry officers why the Infantry does not have a "party line," fostered and supported by all Infantry officers, which would insure recognition of the Infantry's future capabilities and needs. They seem to feel that lack of homogeneity of view on the part of Infantry officers with respect to the future role and needs of Infantry mitigates against adequate support of vital development in Infantry organization and equipment, especially where such support must be sought in competition with other arms and services that do appear to have a "party line." Because of its unfortunate implications it is regrettable that the term "party line" should be referred to in this often repeated query. However, I can readily appreciate the concern expressed. Just as our President has stated that it would indeed be frightening if there were no strong arguments among the services in this period of vast technological change, it would also be frightening if such arguments did not occur between the branches of the Army, and within the the Infantry itself for that matter. Still, if the capabilities and requirements of Infantry for future warfare are to receive due consideration, they must be objectively determined, clearly stated, and unanimously supported by all forward-thinking Infantrymen. The maxim of Napoleon that "The tools be-

MAJ GEN A. D. MEAD

long to the man who can use them" might well have its corollary in that "The men who use the tools should establish the requirement for them." If we of the Infantry do not clearly determine the nature of our future operations and needs, someone less qualified will certainly do so for us. A "party line" is not appropriate. Nevertheless a common basis must be developed to guide Infantry officers in their various tasks and discussions.

In an approach toward determining the Infantry's role and needs for future warfare, we should recall the Chief of Staff's recent statement that ". . . *the ultimate purpose of the Army is to advance Infantry to the sources of the hostile strength for making war.*" With this always in mind, we should then consider the additional guidance provided by the Chief of Staff that the Army " . . . must be prepared to fight a war with atomic weapons, and at the same time be prepared to fight a war in which atomic weapons are not used or used under certain restrictions. . . . In order to be able to fight the atomic or nonatomic war the Army must develop streamlined, hard-hitting forces with great strategic and tactical mobility, coupled with increased firepower from atomic weapons and from improvement in nonatomic weapons. . . . To give us this essential superior mobility and to meet the threat of atomic weapons, our basic combat units will probably take the form of small, integrated battle groups of all arms — Infantry, Artillery, Armor and Engineer, with the required service support." The problem then resolves itself into a determination of what the Infantry should do to make its best contribution to accomplishment of the over-all Army preparedness.

Preparations for Atomic and Nonatomic War

First, let us consider the difference in requirements, if any, that an atomic and nonatomic war will place upon Infantry. It is inconceivable that in any atomic war *all* of the enemy forces would be eliminated by atomic weapons. Therefore in an atomic war, just as in a nonatomic war, it will continue to be necessary for Infantry to close physically with enemy elements as a prerequisite to seizing and holding vital terrain. To be sure, heavy concentrations of Infantry in both attack and defense may have no place on the atomic battlefield. However, even when operating as part of dispersed battle groups, the mission of the Infantry elements when attacking or defending will be the same as it has been in the past, and will have to be accomplished in much the same manner. This should not produce an attitude of complacency on the part of Infantrymen. Although the Infantryman will always be required to close physically with the enemy, the tactics and technique employed in this closure must be subjected to continuous re-examina-

tion for improvement. The need for basic combat units to disperse to avoid undue loss in atomic warfare and the tactics such dispersal demands can be effectively adapted to conventional warfare. We have not sufficiently utilized dispersed formations in recent wars. Dispersed units, properly constituted and trained, can rapidly concentrate and effect the coordinated actions demanded by either atomic or nonatomic warfare. Our Infantry today is prepared to fight an atomic or nonatomic war. Additional training in accordance with the foregoing considerations will further improve this capability.

Strategic and Tactical Mobility

Needless to say, Infantry and Infantry equipment are highly adaptable for movement in any type of air, ground or water transportation that the Army might utilize in a strategic move. This is equally true of tactical moves, with the added ability of Infantry to go places where no type of mechanical transportation can operate. In future war it often will be necessary for Infantry to make rapid and relatively long tactical moves. On the ground these moves will frequently be made in armor-protected carriers. The need for armor-protected carriers is not dictated solely by the requirement for protection from the effect of atomic weapons. Protection against the effects of VT-fused ammunition fired from conventional weapons is also required. Our Infantry is yet to be confronted with the massed effects of this highly destructive ammunition which calls for countermeasures similar to those required to minimize the effects of atomic weapons.

Infantry will frequently require the tactical movement of platoons, companies and battalions by helicopter. Such moves will be essential to insure timely action and reaction in the battle area. Timing is the cornerstone of success in battle. A battalion at the right time and in the right place today may be worth a regiment or a division tomorrow. Infantry elements of dispersed battle groupments, striking rapidly at the flanks and rear of the enemy by use of armored carrier and helicopter transportation, will disrupt the enemy's exploitation of his atomic strikes, cut off his retreat, and render him vulnerable to our own atomic attack.

It must be realized that Infantry cannot fight from armored carriers or helicopters. This is purely tactical transportation. It must also be recognized that all Infantry cannot be provided with armored carriers on a full-time basis. As in the past, the combat medium of the Infantryman will be the ground on which he walks. Consequently, Infantry must be provided with an effective device for rapid digging and with man-portable overhead covers for foxholes and weapon emplacements.

The tactical mobility of Infantry is largely determined by the weight of the weapons, ammunition, and equipment which the individual Infantryman must hand-carry. Development of lightweight weapons and ammunition with increased lethality and other lightweight equipment for Infantry must receive high research priority. To date, Infantry has not shared sufficiently in the fruits of our country's extensive technological advance. Funds required for such highly important research and development are modest indeed when compared to the total funds being expended in other military fields.

Battle Groupings

Although the combat groupings of the future will often be composed of all arms, the bulk of the manpower within such groupings will be Infantry. The mission of the Infantry will be to seize and hold tactically important terrain. In the course of such actions, the Infantry elements will be supported by elements of the other arms and will in turn pro-

tect these elements from attack by enemy Infantry. To increase its effectiveness, Infantry must strive to develop new tactics, organization, and combinations of weapons. Integration of elements of the other arms with Infantry at very low tactical levels to form small mobile task forces must be habitually practiced. Because Infantry operations are at best hazardous and costly of personnel, methods must be sought to render this most demanding of combat jobs less expensive.

Personnel and Leadership

The increased technological aspects of our military structure have created an almost insatiable demand for personnel of highest quality. The need for high-caliber men in the Air Force, Navy, and within certain arms and services of the Army is more tangible and more easily understood by the general public than is the need of the Infantry. For this reason the Infantry must make extraordinary efforts to secure its vitally needed share of high-quality men. It is from such men that Infantry must provide for leadership of its units. These units are composed of the most precious of all commodities—individual men. Certainly the leadership provided them should have a higher priority than that required for the supervision of complex weapons and machines. *We must keep constantly in mind that the most critical MOS in the Army is the Infantry combat leader!* We must express this view quietly and temperately but unceasingly.

Infantry Capabilities and Requirements of the Future

From the foregoing discussion, I offer the following suggestions as to Infantry capabilities and requirements of the future:

1. Infantry operations are essential to the successful prosecution of either an atomic or nonatomic war, and our Infantry is prepared today to fight any type of war. Additional training and improved equipment will enhance this capability.

2. Infantry tactics, doctrine, organization, and equipment must be equally adaptable to an atomic or nonatomic war.

3. Armored carriers and helicopters must be made available to transport Infantry in large numbers.

4. The weight of Infantry weapons, ammunition, and other equipment must be reduced and their effectiveness increased. A device for rapid digging and man-portable overhead covers for foxholes and weapon emplacements must be developed. High priority should be devoted to research and development in these fields.

5. Infantry tactics and organization must be developed which will optimize the support rendered by other arms and thus reduce the loss of Infantry manpower in combat operations.

6. Infantry must be alloted an equitable share of high-quality personnel.

I am confident that strong and continuing support of these suggestions by all Infantrymen will insure the Infantry's ability to do its part in accomplishing the mission of the Army "to *defeat* enemy forces in *land combat* and gain *control* of the *land* and its *people*."

MAJ GEN ARMISTEAD D. MEAD was commissioned in the Infantry upon graduation from the United States Military Academy in 1924. Prior to World War II he served in Infantry assignments in the United States, the Philippines and Hawaii and was an instructor at The Infantry School. During the war he served in both the Pacific and European Theaters. Later, returning to The Infantry School, he was in turn director of the Staff and Tactical Departments. In Korea, he was assistant division commander of the 3d Infantry Division. After a tour as chief of staff, Third Army, he returned to the Far East and commanded the 1st Cavalry Division. In his present assignment as chief of Infantry, Headquarters, Continental Army Command, he is the foremost spokesman for the Infantry.

How would YOU do it?

By CAPT RICHARD S. SWEET

Before attempting to solve this problem read "Small-Unit Task Forces" page 16. Then study the situations and the map. See if you come up with Capt Sweet's solutions.

Throughout the Army today, the development of greater mobility for our units has reached a feverish pitch. The nuclear age demands that major ground units be able to disperse rapidly and mass again just as quickly to offset a potential enemy's nuclear-warfare capabilities.

Today there are a few experimental organizations specifically designed for greater mobility and dispersion. But the hard truth is that if war were to come immediately, our Infantry divisions would probably fight at the outset as they are presently organized. These conventional divisions, organized essentially as they were during World War II and the Korean conflict, will have to become mobile in a hurry if they are to survive in an atomic war.

Small units can achieve this mobility by hastily organizing motorized task forces. This can be done by temporarily attaching vehicles and additional equipment to motorize the unit. The flexibility needed in planning and executing ground combat under the threat of an atomic capability will probably mean that task forces of this nature will be put together quickly with very little advance warning to the junior leaders involved in the actual organization, loading and movement of such task forces. The highly fluid nature of modern ground warfare, coupled with the inevitable lack of time, will preclude a deliberate, painstaking physical reconnaissance. In addition, because of the wide dispersal of major units, junior leaders must be capable of extraordinary initiative in leading their units in task-force operations under conditions which may not permit the helpful supervision of immediate superiors.

In the past commanders have found it necessary to augment the division reconnaissance company and regimental I&R

platoon with motorized task forces to provide increased surveillance of the enemy and to maintain contact with friendly forces. These task forces were organized from Infantry units (generally rifle companies) and were motorized by temporarily attached vehicles.

There are a number of missions which could be assigned to such units:

1. To reconnoiter to the front and flanks.
2. To provide security to the front, flanks and rear.
3. To maintain contact with friendly or enemy forces.
4. To clear enemy roadblocks.
5. To seize and hold critical terrain.
6. To reinforce or relieve an isolated unit.
7. To provide deception.

All of these missions, in an atomic or nonatomic war, can be accomplished by small motorized Infantry task forces.

The actual size of the task force will depend entirely upon the mission and the enemy situation. It may vary anywhere from a reinforced squad to a battalion reinforced with tanks and artillery. Hence, the detailed organization of the unit being motorized, and its attachments, will vary with each specific situation.

However, there are certain general considerations common to all task-force operations.

Let's see how you would solve some of the problems that a platoon leader would face in organizing and planning for the employment of a task force consisting of a motorized reinforced Infantry platoon.

General Situation

It is 15 July and the 85th Infantry Regiment has been pushing forward steadily against stubborn enemy resistance (see Map A). Enemy forces have executed a series of retrograde actions to the north along Highway 85 and are presently organized in strong defensive positions on the high ground south of Nozgrad. The 85th Infantry is at 70% strength in authorized personnel and equipment.

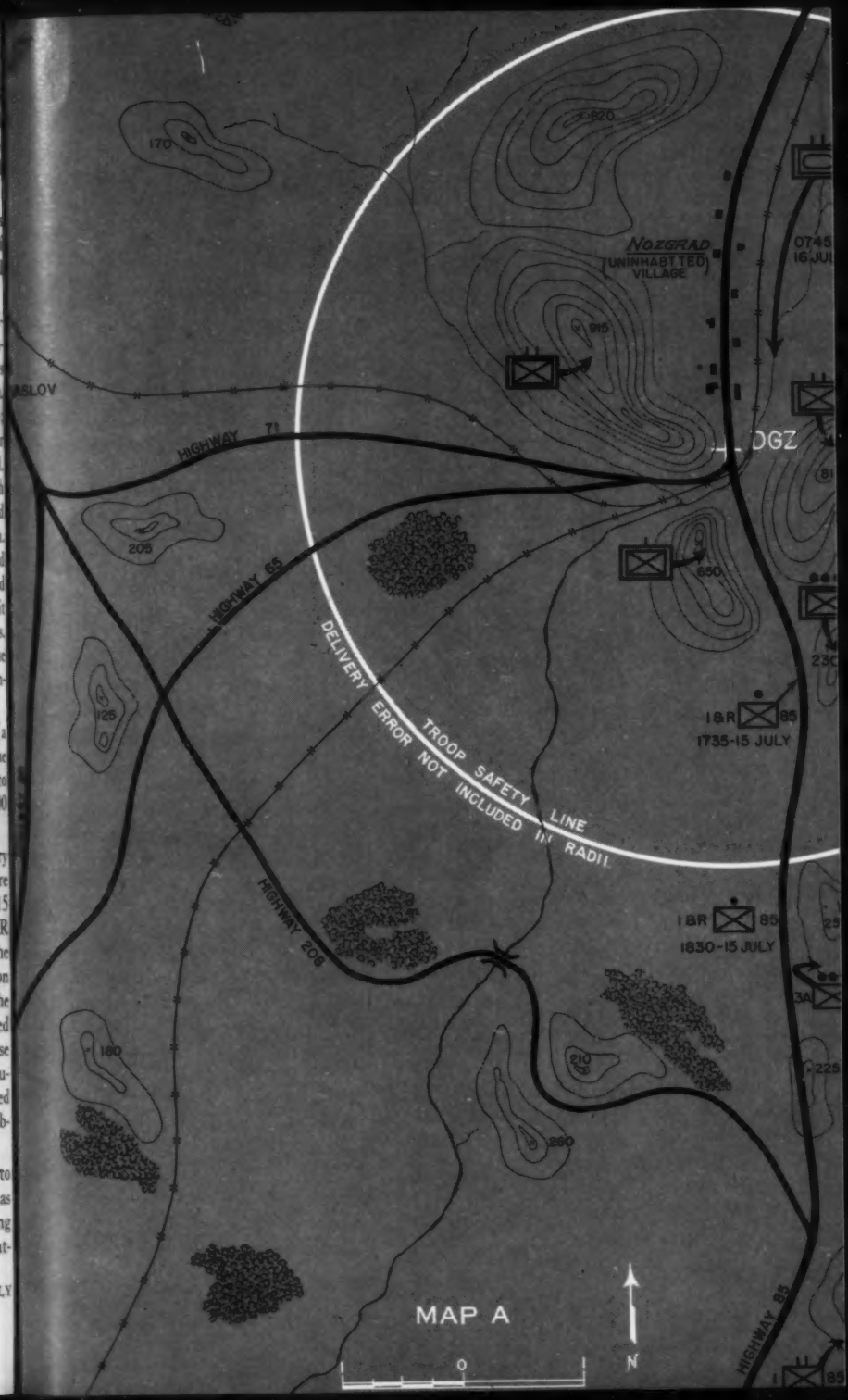
Both sides have used atomic weapons tactically and possess the capability of delivering such weapons by air and ground means.

The 10th Infantry Division intelligence estimate includes the following information: During the past two days there have been heavy rains in the area. The ground and vegetation are damp; however, cross-country trafficability for wheeled and tracked vehicles is good. Cool and clear weather is forecast with visibility predicted at 20 miles and wind at 10 miles an hour from the south. Woods in the zone are sparse but afford fair concealment. Numerous trails and fire breaks throughout the woods permit passage of tracked and wheeled vehicles. Because of previous battles fought in the area the village of Nozgrad is uninhabited.

The 1st Battalion seized Hill 512 (a march objective) at 1700 hours on the 15th and has been ordered to proceed to Nozgrad along Highway 85 at 160800 July.

Other elements of the 85th Infantry are following the 1st Battalion. There are no friendly ground forces within 15 miles. One squad of the regimental I&R platoon is in front of the battalion. The battalion posted a platoon-size outpost on Hill 250 at 151720 July. At 1735 the squad from the I&R Platoon was stopped 400 yards south of Hill 230 by intense machinegun fire from Hill 230. Lieutenant Colonel, 1st Battalion, received the following information from an observer in an Army aircraft:

"An aggressor force which appears to be of reinforced regiment strength has dug in on the high ground surrounding Nozgrad. It looks like there is one bat-


NOZGRAD
(UNINHABITED)
VILLAGE
0745
16 JUL
DGZ
HIGHWAY 71
HIGHWAY 65
HIGHWAY 208
HIGHWAY 85
DELIVERY ERROR NOT INCLUDED IN RADII
TROOP SAFETY LINE
I&R 85
1735-15 JULY
I&R 85
1830-15 JULY
820
915
650
205
125
160
210
280
MAP A
0
N

CAPT RICHARD S. SWEET received an RA commission in 1951 upon graduation from the University of Rhode Island where he had been a distinguished military student. After completing the associate Infantry company officer course at Fort Benning, he was assigned to the 29th Infantry Regiment on Okinawa. In 1952 he entered combat as a platoon leader with the 279th Infantry Regiment, 45th Division in Korea, later becoming a company commander and then, assistant battalion S3. Returning to the United States in 1953, Capt Sweet served as a tactical officer in the School Brigade, TIS. In October of that year he became an instructor with the Tactical Department and is now attending the advanced course.

talion on Hill 810 and another on Hill 915. I can't see very much on Hill 230 but I don't think there is more than a platoon there. Those are the only locations I can pinpoint."

At 1755 hours Lieutenant Colonel, 1st Battalion, received a coded message from Colonel, 85th Infantry, to the effect that he was to organize defensive positions on Hill 512 for the night. At 160400 July, he received an additional message stating that an aggressor tank battalion was moving south to reinforce the Nozgrad area and was expected to arrive at the junction of Highways 71 and 85 at approximately 0745 hours. An Honest John rocket with a 75-kiloton atomic warhead will detonate a low air burst over the road junction at 0800 hours. (See Map A.) At 0800 hours the 85th Regiment with first battalion leading will bypass the enemy in the Nozgrad area, proceed northwest along Highway 208 toward Vaslov to join 86th Infantry for the final assault on this key rail center. Third Battalion, 87th Infantry, will execute a helicopterborne assault to seize Nozgrad as soon as possible following the atomic burst.

Special Situation

It is 160530 July. You are Lieutenant, 1st Platoon leader, Company A, 85th Infantry. From Captain, Company A, you have just received a fragmentary verbal order, portions of which follow:

"Army aircraft conducted a reconnaissance of Highway 208 up to the road junction of Highways 88, 71 and 208 just before dark last night. They report no enemy sighted anywhere along Highway 208. At 0800 hours our regiment will head for Vaslov using Highway 208.

"For the movement to Vaslov our battalion will be entirely motorized — we will depart at 0800 from our present positions. The colonel wants one platoon of this company to depart at *0730 (30 minutes before the air burst)* to reconnoiter Route 208 up to junction of Highways 71, 88 and 208 and to secure Hill 205 which commands the road junction. Here is an overlay showing the troop safety line. The closest you will come to the troops-in-open safety line is about one mile. That point is here by the bridge on Highway 208. One pocket dosimeter will be issued to each vehicle leader and one survey set will be given you to check any radiation effects. Reconnoiter the route very carefully; the enemy may have set up delaying positions during the night. Be especially watchful for any enemy movement along Highway 71 from Vaslov. The aggressor may try to reinforce Nozgrad using this road. You will have an attached 57mm rifle squad and a 60mm mortar squad.

"Regiment is sending down five ¼-ton trucks and two 2½-ton trucks. They will be here in 10 minutes. One of the ¼-tons has an AN/GRC 7 radio already mounted on it and a radio operator will be with the vehicle. The drivers will remain with the vehicles for the operation.

"Pick up a basic load of ammunition at the ammunition distributing point. There will be LMGs mounted on four of the ¼-tons. Both of the 2½-ton trucks will have .50-caliber MGs on the ring mounts. The ammunition for these machineguns will be on the vehicles when they arrive.

"Each vehicle will have an AN/PRC 6 radio when it arrives.

"Report to battalion every 15 minutes over the AN/GRC 7.

"Take your platoon medic with you. Any questions?"

As platoon leader you have two hours to organize your task force.

First Requirement

Assuming you have a full-strength TOE rifle platoon with an attached 57mm rifle squad and a 60mm mortar squad, how do you plan to organize and load your troops on the five ¼-tons and the two 2½-ton trucks?

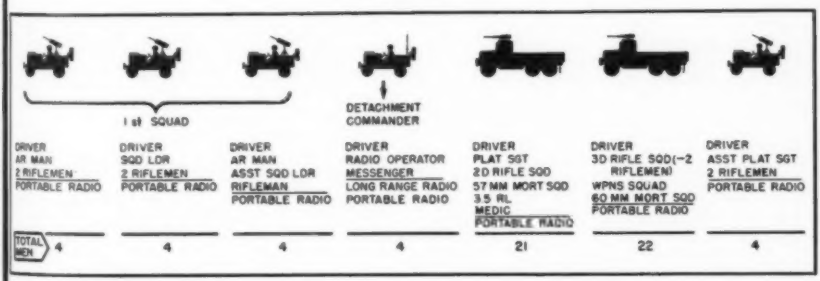
Special Situation Continued

After formulating the loading plan Lieutenant, Company A, next turns to a detailed map reconnaissance. It is now 0600. This leaves him an hour and a half to complete his planning and issue his order. Because of the early morning darkness and limited time he rules out the possibility of an aerial reconnaissance. A physical reconnaissance is not possible because of the unknown enemy situation along Highway 208. Hence, a map reconnaissance of the route must suffice. He also studies the objective area. In making his map reconnaissance Lieutenant, Company A, first considers his route with respect to the effects of the air burst. He notes that at one point (bridge area) he would be within approximately one mile of the safety line for troops in the open. The safety line was predicated on the center of impact being as shown. Any deviation from this would correspondingly change the areas affected by the air burst. He further reasons that any southerly error in the burst might expose his unit to the thermal (heat) effects of the blast. He therefore decides to select a point along his route where he can deploy his unit in covered positions at the actual time of the burst (0800). To accomplish this he makes a detailed map reconnaissance of all danger areas along the route. For each danger area, he devises a tentative plan of action to be executed on the ground while moving.

Second Requirement

Study the map and determine where each possible danger area is. For each, devise a tentative plan to use when these points are actually encountered on the ground. Assume that the squad from the I&R platoon has returned to Hill 250 where the combat outpost had been organized during the night.

Figure 1.



Solution First Requirement

In loading any motorized task force (Figure 1, page 97) three fundamental characteristics should be incorporated: tactical unity, security and control. In following these principles Lieutenant, Company A, arrived at this solution:

Lieutenant, Company A, decides to use three of his ¼-ton trucks to motorize his leading rifle squad. By moving up to 300 yards ahead of the bulk of the platoon this squad can act as the finding-and-fixing force and will provide forward security for the platoon. The lead squad can move either by continuous movement or by bounds. In this situation the two leading vehicles would move by bounds for maximum security. Tactical unity and control are maintained because the entire squad is grouped together under control of the squad leader.

In the fourth ¼-ton is the task-force commander with the AN/GRC 7 radio and a portable AN/PRC 6. From this position he can best control his unit. He is free to move rapidly to any point within the column. Although he is near the lead vehicles, he is not actually at the front of the column and can thus control the bulk of his unit.

On the fifth vehicle is the second rifle squad, the 57mm rifle squad and the 3.5-inch launcher team. These elements and those in the second 2½-ton truck are controlled by the platoon sergeant.

The 57mm rifle and the rocket launcher are not located at the head of the column for a number of reasons. The 3.5 must provide antitank protection for the bulk of the platoon. If any enemy armor is encountered the 3.5 would have to be moved to a suitable clear firing position. If it were with the lead squad, enemy fire might interfere with its maneuverability, thus preventing it from engaging aggressor armor. By retaining the 3.5 with the bulk of the platoon, somewhat to the rear, its freedom of maneuver is greatly facilitated. The same is true of the 57mm rifle. Inasmuch as it requires clear fields of fire it should be kept out of any immediate fire fights until a suitable firing position can be found. Again, were it near the front of the column, enemy fire might restrict its maneuverability.

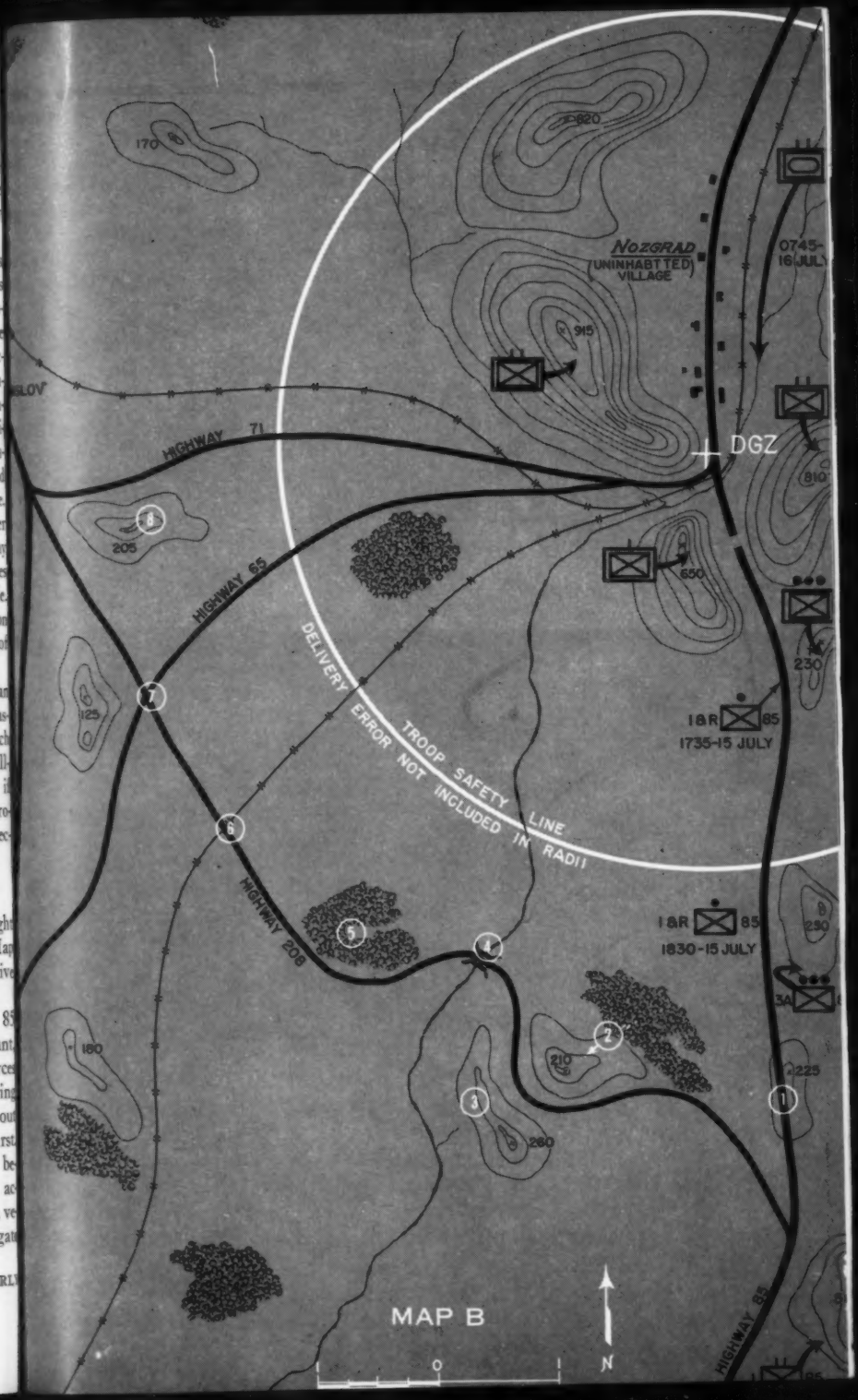
Bringing up the rear of the column is the assistant platoon sergeant. From his position in the rear he can provide a measure of rear security with the help of the two riflemen from the third squad. Tactical unity is achieved because, throughout the column, units retain their identity. Their leaders are realistically positioned in locations which facilitate control. Control of the column is increased by the AN/PRC 6 radio in each vehicle. The task-force commander can number his vehicles and communicate with any of them rapidly. In larger task forces this undoubtedly would not be possible. However, intervehicular communication may be provided between major units of the task force by using larger radios.

Each vehicle within the column has an assigned commander. He, in turn, assigns a specific area of observation to each man within the vehicle, thus insuring all-around observation. In addition, if weather permits, Army aircraft will provide increased observation in all directions during conduct of the operation.

Solution Second Requirement

Lieutenant, Company A, selects eight primary danger areas as shown on Map B. For each he formulates a tentative plan of action.

The road junction of Highways 85 and 208 presents a threat. Lieutenant, Company A, reasons that enemy forces could have infiltrated to Hill 225 during the night. If so, they would be well out of range of the effects of the air burst. He therefore decides to check the hill before turning on to Highway 208. In accomplishing this he plans to dispatch a vehicle from the lead squad to investigate


NOZGRAD
(UNINHABITED)
VILLAGE
0745-
16 JULY
DGZ
HIGHWAY 71
HIGHWAY 65
HIGHWAY 208
HIGHWAY 85
DELIVERY ERROR NOT INCLUDED IN RADII
TROOP SAFETY LINE
1 & R 85
1735-15 JULY
1 & R 85
1830-15 JULY
MAP B
0
1
N

Hill 225 while the other two vehicles remain in positions from which they can instantly lend fire support if the reconnoitering vehicle meets enemy resistance. Coordination with the outpost for the reconnoitering of Hill 225 is accomplished before departure.

Danger points 2 and 3 can be grouped together. Enemy troops could conceivably be located on either. Lieutenant, Company A, decides that the danger of ambush would be greater if he moved between the two hills without first checking them. He plans to check Hill 210 and the adjacent woods with a portion of his lead squad and then go on to Hill 260. He rules out the possibility of reconnoitering them simultaneously because, if resistance were encountered on both, he would be forced to split his fire support. Further, he decides to keep the crew-served weapons ready to provide instant support if any enemy is encountered. Lieutenant, Company A, estimates that he could finish clearing Hill 210 by 0800. In studying the location of the troop safety line he notes that delivery error was not included. To allow for error in delivery he plans to dispose his troops in covered positions on the southern slopes of Hill 210 at 0800.

Danger point 4, the bridge, presents a different problem. Because of heavy rains in the past few days, Lieutenant, Company A, is concerned about crossing problems. In the event the bridge is blown, he would have to find a stream crossing, not only for his platoon but for the rest of the battalion and the regiment. Intelligence informed him that at darkness last night army aircraft reported the bridge apparently was intact. He also was told that there was no information available on fords in the bridge area. He makes a mental note to check for fording points even if the bridge is intact since it could be destroyed after his platoon crosses. Further, the lieutenant plans for a careful reconnaissance of the bridge itself to determine if it is wired for demolition or if any other devices have been installed to cause its destruction.

Danger point 5, he decides, is the wooded area on the north side of Highway 208. Because of its proximity to the highway, this could be an ambush point. He tentatively plans to dismount his lead squad for a foot reconnaissance of the southern edge of the woods. Organic and attached crew-served weapons will be positioned to support the movement through the woods.

The railroad crossing at point 6 could be an enemy reference point. Lieutenant, Company A, plans to check the crossing. (If it appears to be mined, probing with bayonets will be necessary because of metallic interference with mine detectors.) In addition, the excellent fields of fire afforded by the railroad bed itself would require that he check out the areas on either side of the crossing for possible enemy crew-served-weapons positions. The bulk of the platoon will be held back to the east of the railroad crossing in case enemy indirect-fire weapons should take it under fire.

The road junction at point 7 presents another problem. All road junctions are danger areas. They contain the possibility of ambush and are natural reference points for indirect-fire weapons. Lieutenant, Company A, decides to reconnoiter each road, separately, one bound (not to exceed 500 yards), so that his fire-support elements do not have to be split. Because Hill 125 commands the approaches to both roads, he decides to check out the southern portion one bound, checking out Hill 125 at the same time. Thus Highway 65 will be reconnoitered one bound on the northern side of the road junction. Again, weapons will be positioned for instant support if required.

In studying his map Lieutenant, Company A, notes that his final objective

Hill 205, commands the open approaches from Highway 208. Because of its critical disposition overlooking the road junction and the danger that any enemy occupying it could take him under long-range fire, Lieutenant, Company A, decides tentatively to reconnoiter the hill by fire before exposing his troops to a possible ambush. With reconnaissance by fire he hopes to cause any aggressor present to prematurely reveal his positions. Further, if he were pressed for time this method of reconnaissance could possibly serve as a means of determining the presence of any enemy on Hill 205 before his actual movement to the hill. In arriving at this tentative plan the lieutenant considers the requirements for using reconnaissance by fire. First, he is aware that if security is paramount, he will not be able to employ this method. Secondly, sufficient ammunition will have to be carried for the heavy expenditure which reconnaissance by fire requires. The presence of any friendly troops would be another factor. In this case he reasons that security will not be paramount because the preceding nuclear burst in the vicinity of Nozgrad would alert any enemy for miles.

Following the execution of reconnaissance by fire, Lieutenant, Company A, plans to seize Hill 205, and dispose his troops in a perimeter defense around the military crest. The vehicles will be placed in defiladed and covered positions on the southeastern side of the hill. Following the seizure of Hill 205, he plans to send his lead squad to reconnoiter the road junction. Each of the intersecting highways will be reconnoitered one squad. The drivers of the vehicles remaining on Hill 205 will provide local security for their vehicles under supervision of the assistant platoon sergeant.

Lieutenant, Company A, requests that supporting artillery plan concentrations on each of the eight danger points and that, if weather permits, Army aircraft screen his front and flanks while moving.

Summary

Lieutenant, Company A, was faced with the problem of planning the execution of his mission, issuing the necessary orders, and of supervising the preparations of his subordinates in the relatively limited period of two hours. While this may appear to be an unreasonably short time, it must be kept in mind that in future conflicts fluid situations requiring perhaps even shorter preparation times quite probably will be the rule rather than the exception.

In carrying out the troop-leading steps involved, great stress should be laid upon planning the use of available time. All leaders should, in deliberating the use of their time, ask themselves this one vital question: "What is the latest possible time that I can issue my order to my subordinates and still leave them enough time prior to H-hour to carry out their own troop-leading steps?" Lieutenant, Company A, with only two hours available, should have issued his order no later than 0700. This means that he should take no more than three quarters of the time available to complete his own plan and issue his order.

A detailed map reconnaissance is essential. Again, in the future, it may be the only type of reconnaissance that time and the situation will allow.

Every effort must be made, however, to supplement this with aerial surveillance whenever possible.

Finally, loading plans for small-unit task forces will vary greatly. Any number of possibilities is acceptable providing that the characteristics of tactical unity, security and control are emphasized. Generally load your troops, weapons and equipment in their anticipated order of use — from front to rear of the column. This will insure rapid, well-coordinated employment of all elements when contact with the enemy is made.

CHECKLISTS FOR INFANTRY LEADER

This is the third in The Infantry School's series of checklists for small-unit leader When completed the entire series will be published in a Department of the Army pamphlet. Unlike the checklists in previous issues of the Quarterly, *this one does no cover the actions of platoon and squad leaders. Since night attack is somewha limited in use, separate lists have not been prepared. Platoon and squad leader should adapt appropriate parts of the company commander's checklist for thei planning and issuance of orders. This list is for a night attack to be conducte without supporting fires and without illumination. A checklist for an attack in which illumination and supporting fires would be used closely parallels that for a day light attack. We repeat our word of caution on checklists. They are not inflexible rules but guides that should be modified to fit the situation. Use them to chec your thinking and free your mind for other considerations.*—Editor.

Company Commander

1. Upon receipt of the battalion warn ing order—

a. Disseminates applicable portions o the battalion warning order to his sub ordinate leaders.

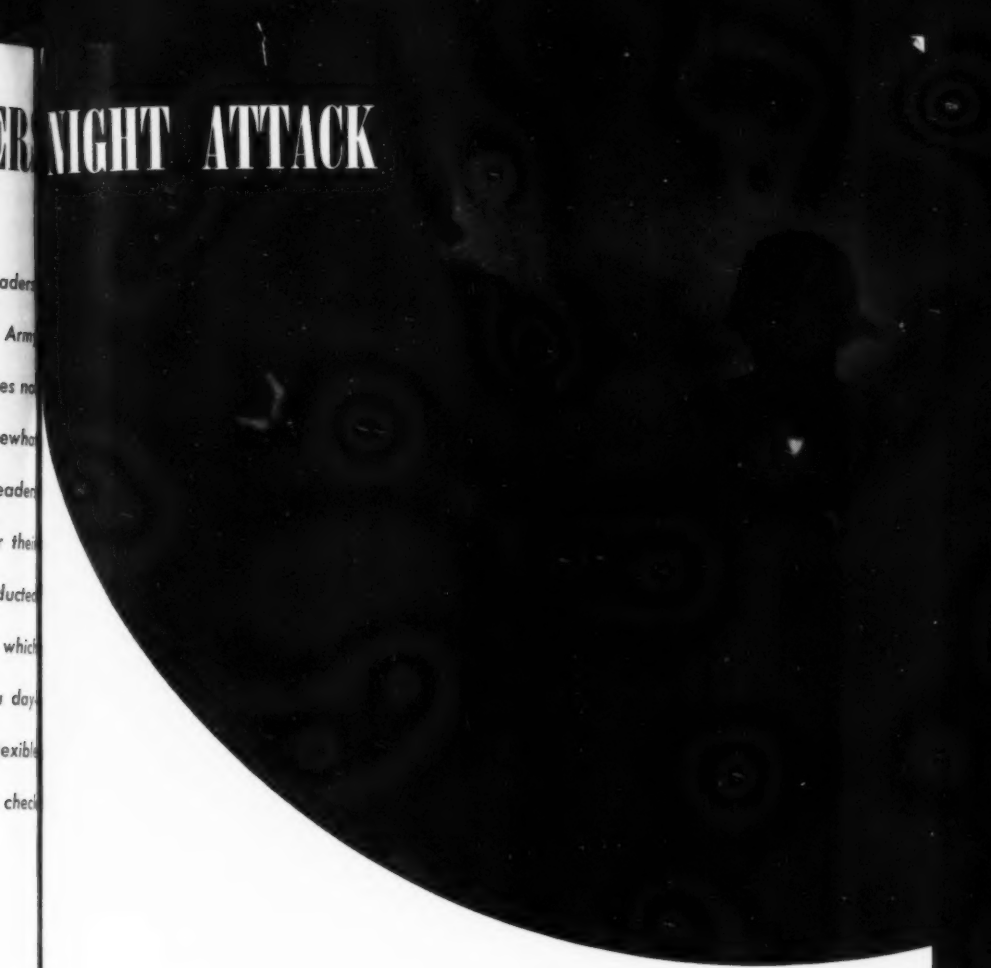
b. Determines what personnel will a company him when he goes to receive th battalion attack order.

c. Initiates as many preparations fo the attack as possible based on informa tion contained in the battalion warnin order.

2. Upon receipt of the battalion attac order —

a. Coordinates as much as possibl with the adjacent and supporting co

NIGHT ATTACK



manders who were present for the battalion order.

b. Arranges for the attached-unit commanders who were not present for the battalion order to join his unit.

c. Arranges for final coordination with adjacent and supporting commanders and the commander of the force in contact.

d. Plans the use of available time.

e. Makes an estimate of the situation.

f. Makes a preliminary plan including the—

(1) Maneuver plan.

(2) Fire-support plan (including plan for use of illumination).

g. Issues a detailed warning order to subordinate leaders including where, when and to whom the company attack order will be issued. This allows subordinate leaders maximum time for reconnaissance, planning and preparation.

h. Plans his reconnaissance, including the assignment of reconnaissance responsibilities to subordinate leaders if time is limited.

3. While on reconnaissance (during daylight, if possible)—

a. Looks for the —

(1) Route forward from the assembly area to the attack position, including company release point. He may

assign this responsibility to the company executive officer.

(2) Attack position, including locations for subordinate units.

(3) Route or routes forward from the attack position to the line of departure and forward to the probable line of deployment, including the platoon release point.

(4) Initial position areas (on-or-off-carrier) for organic and attached weapons.

(5) Line of departure, including the point or points of departure.

(6) Probable line of deployment, including the zones of action for the attacking rifle platoons.

(7) Company objective, including objectives for the attacking rifle platoons.

(8) Identification of the limit of advance, if possible.

(9) General location of company command post.

(10) Company observation post(s), if required.

(11) Tentative areas for reorganization and consolidation, including the location of the reserve and company command post and the final position area for the organic and attached weapons. This part of the reconnaissance will probably be supplemented by map study.

b. Selects the—

(1) Route forward from the company release point to the attack position. He may assign this responsibility to the company executive officer.

(2) Attack position, if authorized by battalion commander. The battalion commander usually selects the attack position; however, he may delegate this to the rifle-company commander.

(3) Locations for subordinate units in the attack position.

(4) Route forward from attack position to platoon release point.

(5) Point or points of departure on line of departure.

(6) Platoon release point.

(7) Probable line of deployment if authorized by the battalion commander. The battalion commander usually selects the probable line of deployment; however, he may delegate this authority to the rifle-company commander.

(8) Zones of action for the attacking rifle platoons.

(9) Platoon objectives.

(10) Reserve position for reorganization and consolidation.

(11) Control points on the objective where guides will meet organic, attached or supporting units.

(12) Initial and final position areas for organic and attached weapons and the general location of company command post.

(13) Company observation post(s) if required.

(14) Limit of advance if authorized by the battalion commander. The battalion commander usually selects the probable limit of advance; however, he may delegate this authority to the rifle-company commander.

4. Upon completing his reconnaissance—

a. Coordinates with adjacent and supporting commanders and the commander of the force in contact.

b. Arranges for—

(1) Passage through friendly lines.

(2) Reconnaissance and patrolling activities.

(3) Maintaining contact with adjacent units.

(4) Position areas for supporting weapons.

(5) Communications.

c. Receives recommendations from leaders of organic, attached or supporting units.

d. Completes his estimate of the situation.

e. Completes his plan of maneuver including the—

(1) Movement of the company to the attack position.

(2) Formation to cross the line of departure.

(3) Time of attack.

(4) Formation for assault.

(5) Objectives and specific missions for the attacking rifle platoons.

(6) Plan for reorganization and consolidation, including the position and mission of the reserve.

(7) Security considerations.

(8) Detailed coordinating instructions and control measures including the—

(a) Company release point.
(b) Attack position.
(c) Line of departure.
(d) Point or points of departure.
(e) Direction of attack.
(f) Platoon release point.
(g) Probable line of deployment.
(h) Limit of advance.
(i) Rate of advance.
(j) Position of leaders.
(k) Use of guides.
(l) Designation of base element.
(m) Distances to be maintained between individuals and platoons.
(n) Use of infrared equipment.
(o) Identification of leaders and friendly troops.
(p) Patrolling and reconnaissance activities and restrictions.
(q) Means of communication including emergency sound and visual signals.
(r) Routes of withdrawal and rallying points.

f. Completes the company fire-support plan including—

(1) Mortar and artillery concentrations.

(2) Direct-fire target areas.

(3) Fires scheduled by battalion and regiment.

(4) Tactical employment of organic and attached supporting units.

(5) Mission of supporting units in protecting the reorganization and consolidation on the objective.

(6) Specific instructions for the time and displacement of fires.

(7) Specific instructions for illumination.

(8) Emergency signals for lifting and shifting fires.

(9) Means of communication.

g. Prepares notes necessary for the issuance of the order.

5. Upon completion of his plan—

a. Proceeds to a location previously designated for issuing the order.

b. Conducts a detailed orientation on the terrain with the personnel directed to receive the order.

c. Issues the five-paragraph order, usually orally.

d. Answers questions and insures that the order is clearly understood.

6. After issuing the order —

a. Briefs night patrol leaders.

b. Continues his reconnaissance at dusk and after dark.

c. Insures that night patrols are dispatched at the designated times.

d. Insures that his organic and attached units are supervised before the attack.

e. Insures that final preparations incorporate the company plan of attack.

f. Returns to the attack position to debrief returning members of night patrols and awaits the arrival of the company.

7. During the attack—

a. Leads his company to the platoon release point. If control of the attacking rifle platoons is released to the platoon leaders before crossing the line of departure, the company commander insures that attacking rifle platoons cross the line of departure at the designated time and designated points of departure.

b. Positions himself near and to the rear of the designated base element after

releasing control of the attacking rifle platoons to the platoon leaders.

c. Insures that the rate of advance and the direction of the attack are maintained.

d. Uses his initiative in ordering actions of the company and in requesting supporting fires and illumination if the attack is discovered before completing the final deployment.

e. Orders the movement of the company forward from the probable line of deployment.

f. Insures that the assault is initiated aggressively once the final deployment is completed and the attack discovered.

g. Keeps the battalion commander informed of the situation at all times.

h. Requests the necessary supporting fires and illumination during the assault.

8. Following seizure of the objective—

a. Reports the situation and status of the company to the battalion commander.

b. Makes necessary adjustments in the original plan for reorganization and consolidation.

c. Reassigns personnel to key jobs made vacant by casualties.

d. Insures that the ammunition supply is replenished and redistributed.

e. Posts local security.

f. Check-fires the supporting fires planned to protect the reorganization and consolidation.

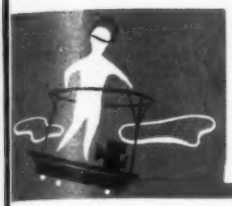
g. Insures guides are dispatched to meet organic, attached or supporting units.

h. Designates a reserve as soon as the situation permits.

i. Orders the reserve to move to a designated reserve position.

MAKING A JUMP?

The next time you make a jump to a new assignment drop us a note. Let us know where you are so your Infantry School Quarterly can follow you. Write: Chief, Circulation Section, The Book Department, The Infantry School, Ft. Benning, Georgia.



WHAT'S NEW FOR INFANTRYMEN

APPROVED

RA Commissions for Nonregular Personnel

The Army will integrate selected nonregular personnel into the Officer Corps of the Regular Army with permanent grades up to and including colonel. A new law[1] permits the Army to raise its regular officer strength from 30,600 to 49,500.[2] Many of these officers will be selected from Reserve or National Guard officers, former Army officers and civilians who desire Regular Army commissions.

This is the first time since 1947 that general authority has been provided for the appointment of Regular officers above the permanent grade of first lieutenant. The purpose of this augmentation of the Army's Regular Officer Corps is to provide incentive and opportunity for military careers and to reduce the turnover in officers.

Goals for the increase in Regular officers have been based on the rate at which qualified officers can be selected and on a balanced structure which will avoid the troublesome "humps" of the past. These goals are set at 35,640 by July 1958 and 39,600 by 1963. Approval of procurement beyond the 1963 goal is being withheld by the President until Regular officer strength approaches the 39,600 figure.

To be eligible for appointment, an officer must be able to complete 20 years of active commissioned service before his 55th birthday.

Permanent grade, promotion-list position, seniority in permanent grade and permanent-promotion eligibility will be determined for each appointed officer. For these purposes, the officer, *in the discretion of the Secretary of the Army*, may be given credit for his active commissioned Army service (after 6 December 1941 and since his 21st birthday) and, if required, *one* of three types of constructive credit.

The maximum age at which an officer may be appointed is 27[3], plus the number of years credit (active commissioned service plus constructive credit) which the officer is given. If constructive credit is given, the total credit granted will not be greater than the number of years by which his age exceeds 27.

The three types of constructive credit are as follows:

1. A commissioned officer on active duty on 20 July 1956 (effective date of the Act) may receive constructive credit (not to exceed eight years) for the number of years by which his commissioned service creditable for basic pay exceeds his *active* commissioned service.

2. Outstanding specialists in critical fields (not to exceed 200 officers) may be given constructive credit up to eight years based on criteria prescribed by the Secretary of the Army and on approval of the President. Details on this provision will be published in a separate DA circular.

[1]Public Law 737, 84th Congress, "The Armed Forces Regular Officer Augmentation Act of 1956."
[2]The 49,500 ceiling does not include the Army Nurse Corps, Army Medical Specialist Corps or the professors at West Point and no provision of the law applies to them.
[3]Except for Veterinaries, Chaplains, JAGs and MSCs for whom provisions of previous laws and policy continue to apply.

3. Appointees who do not qualify under either of the above provisions may be given two years' constructive credit.

Here are several examples to illustrate the above constructive credit provisions:

Example 1. An applicant 40 years old at the time of appointment was on active duty on 20 July 1956. He has 10 years of active commissioned service and five years' additional service as a reserve officer not on active duty — a total of 15 years for which he can be given constructive credit. However, since this exceeds his age (40) minus 27, he may be credited with only 13 years.

Example 2. An applicant 40 years old at appointment has 12 years of active commissioned service and no inactive service. He could be credited with 12 plus two, or 14 years, but this exceeds his age (40) minus 27; therefore, he may receive credit only for 40 minus 27 or 13 years.

Example 3. An applicant 40 years old at appointment has 10 years of active commissioned service and no inactive service. He could be credited with 10 plus two, or 12 years, but since his age at time of appointment *may not exceed 27 plus his promotion-list credit,* the maximum age at which he could be appointed is 39 years. He is one year over that age limit and therefore *ineligible.*

Service credit for promotion purposes is calculated from a "basic date" for each officer which is published in the promotion lists of the Army Register.

The effect of the new law's constructive credit provisions on the basic date of a new appointee may be summarized as follows:

(1) The basic date of an officer who receives credit only for *active* commissioned service must fall between his 21st and 27th birthdays.

(2) The basic date of an officer who receives any constructive credit must be his 27th birthday.

The first step toward augmenting the Regular-officer strength consists in increasing the normal annual procurement of junior officers. This increased procurement has already been initiated. It involves chiefly expansion of the procurement of Regular lieutenants from among Distinguished Military Graduates of ROTC and junior officers on active duty. Future legislation also may increase the capacity of the United States Military Academy to provide greater procurement from that source.

The chief source to fill the vacancies below the 39,600 goal will be reserve-component officers on active duty — although others will be eligible. Each of the 40,000 eligible officers of the reserve components who will be on active duty in July 1958 has been placed in a year group in accordance with the maximum service credit which he could receive if appointed. The largest number of available reserve officers is in the 16-year group, where the present Regular officer "hump" exists. Therefore, outstanding officers who qualify for this and several lower-year groups, *on the basis of active commissioned service,* will be offered appointments with up to two years' less service credit than the maximum allowed by the law. This will increase selectivity in the lesser-year groups and allow filling of an understrength in the 11-year group. This procedure may be considered advantageous to those concerned since it will permit them to remain on active duty longer.

Each appointee will be placed on the promotion list after, and will be given the same permanent grade as, the most junior officer already on the list who has had the same or greater service credit and who has not been passed over for permanent promotion. If he is on active duty when appointed, his temporary grade will not be changed; if he enters the Regular Army from nonactive-duty stat-

us, his temporary grade and date of rank will be determined in the same manner as if he were being called to active duty as a reserve officer. Except for the 200 highly qualified technical specialists previously mentioned, Judge Advocates General, Chaplains and Medical Service Corps, no officer will be appointed in a permanent grade higher than the highest in which he has served satisfactorily on active duty.

The following are the concepts on which the selection plan is based:

(1) Selection will be centralized; administrative processing will be decentralized as far as possible.

(2) Selection will be made by boards of mature officers working under the supervision of the Chief, Career Management Division, TAGO. The data available to them will consist chiefly of the candidates' 201 files. However, for applicants not on active duty and those who have limited service, additional selection aids, such as scores on biographical information blanks and interview-board reports, will be furnished to selection boards.

(3) All appointees must be found to be fully qualified to be Regular officers; from among those fully qualified will be selected the best qualified to meet the Army's requirements. Quality will not be sacrificed to meet strength goals.

(4) The man must seek the job rather than vice versa; therefore, initiative is with the individual and candidates must submit applications.

From 1 October 1956 to 31 January 1957 is the period during which all applications must be submitted. A standard application form will be used and certain prescribed documents must be submitted with it.

From November 1956 through March 1957 applications will be processed by major commands. They will be checked for completeness and those from ineligible applicants will be rejected. In appropriate cases, required educational tests will be administered and interviews by boards of officers will be conducted by major commands.

December 1956 through April 1957 is the period for processing by the Adjutant General. This will include assembly and checking of files and various other administrative actions.

Selection boards will act from January through October 1957. In sequence, first, one group of boards will determine which applicants are fully qualified, and then another group will make the final selection of those best qualified from the fully qualified lists in accordance with DA requirements.

The period November 1957 through May 1958 is reserved for such background investigations and physical examinations of those officers selected as may be necessary, preparation of nomination lists, approval by the Secretary of the Army, Secretary of Defense, the President and the Senate, consummation of appointments and issuance of orders.

Allowing for the unforeseen, it is probable that most appointments in the initial augmentation will be made in June or July 1958. A limited number of selections may be announced earlier — probably in the summer of 1957.

DA circular 601-26, dated 13 August 1956, provides detailed information to applicants and commanders and staffs below major-command level. It is being given wide distribution so that all prospective candidates, military and civilian, are afforded an opportunity to apply.

Revised Army Extension Course Program

The Army Extension Course Program is being reorganized in accordance with a recent directive from CONARC. The Infantry School's portion of the program has been reorganized to parallel more closely resident Infantry School instruction and now includes the following:

Precommission Extension Course. This

is the new designation for the old 10 series. It provides precommission instruction and parallels the resident Officer Candidate Course.

Company Grade Extension Course. This replaces the old 20 and 30 series extension courses. Designed for second and first lieutenants, it parallels the resident Associate Infantry Company Officer Course.

Advanced Extension Course. This replaces the 40 and 50 series extension courses. It is designed for captains and majors and parallels the resident Infantry Officer Advanced Course.

A Staff Extension Course, replacing the old 60 series for lieutenant colonels, is being administered by the Command and General Staff College.

Other categories of extension courses are now called Special Extension Courses. They are identified by the title of the course such as Special Extension Course, Field Artillery Gunnery, or Special Extension Course, Legal Administration Assistant, MOS 2601.

The Infantry School now has responsibility for the enrollment of all students in precommission courses for all branches and service schools of the Army. Eventually, The Infantry School will take full administrative responsibility for all precommission courses.

TRAINING AIDS

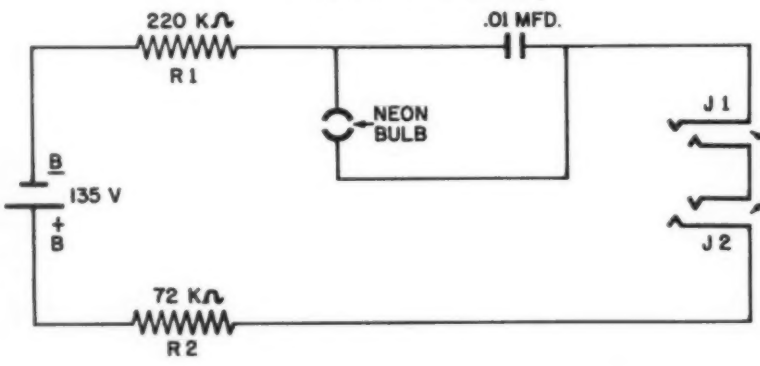
CW Oscillator

An oscillator which produces an audible note comparable to that of an AN/GRC 9 can be constructed with a few spare parts found in any battalion or regimental radio repair shop. Parts needed for this training aid include: one neon bulb (antenna load-indicator bulb from AN/GRC 9); one capacitor (.01 mfd); one resistor (220 K ohms resistance, fixed); one resistor (72 K ohms resistance, fixed or variable); two jacks (JK-34, spares from any set having jacks); one headset (HS-30 from AN/GRC 9); one key (J-45 from AN/GRC 9); one battery (BA 287/U from AN/PRC 10, B— and B+ 135 volts).

This inexpensive device can be used to train CW operators individually or in groups. It can be built by an individual and used to improve his own sending and receiving. The device's compactness and light weight make it easy to retain, store and transport. The R2 resistor may be a variable resistor to adjust the audible note to the desired pitch.

Individuals requiring more information on this training aid may write: Publications and Visual Aids Office, The Infantry School, Fort Benning, Ga.

Figure 1. CW oscillator.



FIELD MANUALS

The following field manuals have been approved by CONARC and forwarded to the Government Printing Office:

FM 22-5, Drill and Ceremonies. This is a complete revision of the old manual. It has been simplified and made more complete.

FM 26-5, Interior Guard Duty. This also is a revised, simplified and more complete manual.

Change 1 to FM 23-25, Bayonet. This change covers bayonet qualification courses and a new method of securing the scabbard to the bayonet during training.

Special Text 23-5-2, Shooting in the Dark. This special text has been completed by The Infantry School and approved for resident and extension course instruction at The Infantry School only. The training methods and techniques described in the text are based on Department of the Army TC 23-1, "Technique of Rifle Fire at Night without Artificial Illumination." Its purpose is to further amplify the methods and techniques of individual and squad night firing described in the circular. Differences between the new text and TC 23-1 are based on experience gained at The Infantry School since publication of the circular.

UNDER DEVELOPMENT

New Army Aircraft

The Army has launched a program to investigate VTOL (vertical take-off and landing) and STOL (short take-off and landing) aircraft. Contracts have been awarded to civilian corporations to design flying "test beds" — experimental man-carrying craft used to test basic principles. Among the test beds thus far proposed is a tilt-wing, turbine-powered, vertical take-off and landing plane (see Figure 2). In this revolutionary aircraft, the shift from vertical lift to forward flight is made by tilting the wing-propeller combination forward. In cruising, the adjustable wing provides lift and the rotor propellers give forward thrust as in a conventional aircraft.

Figure 2.

Another test bed under development is the vertiplane (see Figure 3). This aircraft will use the deflected-slipstream principle. It will be powered by a single gas-turbine engine which will drive two propellers. The aircraft's wing will have large, double retractable flaps to deflect the propeller's slipstream 90 degrees downward so that the plane can take off and land vertically like a helicopter. Once it is airborne, the aircraft's flaps will retract and the slipstream will flow horizontally.

Through development of these planes, the Army hopes to eliminate need for landing fields and to increase air mobility for troops and supplies in the combat zone.

Figure 3.

TRAINING FILMS

The following films have been approved by CONARC and are available at film libraries:

TF 7-2204, Barrel Packing .30-Caliber Machinegun, M1917A1, 6 minutes. This film demonstrates each step of packing procedure. The weapon is disassembled for packing the breach end and assembled for packing the muzzle. Particular attention is given to breaking down the four-strand asbestos packing into single strands and to measuring, oiling, winding and seating the packing. The film emphasizes that successful operation of the gun depends on a properly packed barrel.

TF 7-2205, Browning .30-Caliber Machinegun, M1917A1, 5 minutes. This film demonstrates how the cooling system functions. It shows how steam generated from the heat of the barrel during firing passes through the steam tube assembly and condenses back to water.

LETTERS *(Continued from Page 5)*

ing. The tactical employment in the offense for my platoon is to have it operate as a reconnaissance and security unit until enemy contact has been made; then, it will revert to the fire-support role. In the defense, I visualize that the platoon will function as a reconnaissance and security unit until the security echelons are positioned. At that time, the platoon would revert to the control of the heavy weapons company commander and take its place in the battalion's coordinated fire plan.

Capt Mounsey and I appear to agree on the necessity for such an organization. The exact structure of the platoon is not the paramount factor. Such points as the strength of the battalion, the personalities involved and the ever-present terrain and enemy situation will be the determining factors.

For *Quarterly* readers: If you are in a position to do it, organize an R&S platoon in your battalion and give it a try on your next field exercise. Use the organization suggested by Capt Mounsey, one of your own making or the one I have proposed. I am sure that you will find such a platoon a definite advantage to your unit.

Donald F. Bletz
Capt, Infantry
Tactical Dept.
The Infantry School

Carry on, gentlemen. Your views are thought provoking. We would be interested in hearing from others on this or any other topic that will help to improve the Infantry.—Editor.

Total U. S. Army

Sir:

I look forward to receiving my copy of *The Quarterly*—a very excellent magazine. I read it from cover to cover and enjoy every article.

I have no idea of the number of subscribers that you have but it is my opinion that the number should be at least the total of officers and noncoms in the United States Army.

Walton B. Wilson
M/Sgt, USA
MAAG
Madrid, Spain

The total of officers and noncoms in the U. S. Army is a large figure but we would like to shoot for it. We feel that our role as a forum for new ideas and a source for new developments and techniques is an extremely important one. Word of mouth often is the best way to pass along information. May we suggest that you mention The Quarterly *to your associates. Perhaps they too will join the ranks of* Quarterly *readers.—Editor.*